

AMERICAN RAILROAD JOURNAL.

STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY V. POOR, Editor.

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American Railroad Journal.

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New York, Saturday, October 27, 1855.

State Aid to Railroads.

While it is the policy of most of the States to ignore all connection with railroad enterprises, there are a number which have identified themselves with them. Of the latter, all are in the southern portion of the confederacy. In these, the population is not sufficiently dense, nor accumulated capital sufficiently abundant to provide the means for construction. The States must come to the aid of the roads, or remain without them. The necessity of the case, therefore, sanctions a policy objectionable under other circumstances. In the Northern States, where abundant capital exists for all legitimate enterprises, it would be very unwise and impolitic for States to interpose. Such a conviction has led to legal enactments in most of the Northern States prohibiting them from engaging in any manner, in works of public improvement.

The States now engaged in aiding the construction of railroads to any considerable extent are the following—

Virginia.—This State contributes to the construction of the following roads as a *stockholder*—
Alexandria, Loudoun, and Hampshire,
Fredericksburg and Gordonsville,
Manassas Gap,
Norfolk and Petersburg,
Orange and Alexandria,

Richmond, Fredericksburg, and Potomac,
Richmond and Petersburg,
Richmond and Danville,
Richmond and York River,
Roanoke Valley,
South Side,
Virginia Central,
Virginia and Tennessee.

The State has also aided in the same manner the construction of numerous turn-pikes. It has also aided in the construction of the James River and Kanawha Canal, and railroads not included in the above list. It is also constructing on its own account the Covington and Ohio Railroad as a grand avenue between the Ohio river and the seaboard.

The State subscribes to the amount of *three fifths* to the capital stock of most of the roads aided by her.

Tennessee.—An act was passed in the Legislative Session of 1851-'2, authorizing a loan by the State of \$8,000 per mile, to be applied exclusively to ironing and equipping the roads named in said act. A *bona fide* subscription sufficient to grade them and provide the cross-ties is required before the loan can be obtained; and a section of thirty miles must be made ready for the iron before the delivery of the first instalment. The balance is paid on the completion of successive twenty mile sections. The bonds are taken at *par*, bear six per cent. per annum as interest, and mature in not less than 30 nor more than 40 years from date of issue. They constitute by law a first mortgage upon the roads and their equipment. The company are required to deposit the interest from time to time in the Bank of Tennessee, fifteen days before it falls due. On the failure of this the roads are to be sold, and from the proceeds the State to be remunerated in full for the bonds and the interest on the same. In addition to the above, each company is required after the lapse of five years from date of issue, to apply one per cent. per annum as a sinking fund, to be invested in the purchase of State bonds, which are to be surrendered to the Governor and placed to the credit of the company. In all such cases, the State is also entitled to appoint two of the directors.

An amendment to the above was made in the session of 1853-4, increasing the State loan to \$10,000 per mile, besides special appropriations, on the same terms, for the construction of bridges over the Clinch, Holston, Big Hatchie, and Cumberland rivers. The bonds of the Nashville and Chattanooga company were also guaranteed to the amount of \$650,000.

The following were the companies embraced in the original act:

Nashville and North Western,
Nashville and Memphis,
Chattanooga, Harrison, Georgetown, & Charlestown,
Louisville and Nashville,
South Western,
McMinnville and Manchester,
Memphis and Charleston,
Nashville and Southern,
Mobile and Ohio,
Nashville and Cincinnati,
East Tennessee and Virginia,
Memphis, Clarksville, and Louisville, and
Winchester and Alabama.

By the amendment of 1853, the same aid was extended to the following works:

Edgefield and Kentucky,
Central Southern,
Knoxville and Charleston,
Mississippi Central and Tennessee,
Knoxville and Kentucky,
Tennessee, Western, and Charleston,
Cincinnati, Cumberland Gap, & Charleston, and
Mississippi and Tennessee.

Louisiana.—By an act passed in April, 1853, provision was made for assisting works of internal improvement within this State, in the following manner, viz: When a company shall have received a special charter granting State aid, it is made the duty of the State Treasurer to subscribe to the amount of *one-fifth* of their capital stock. This subscription is made payable in State bonds at not less than *par*, bearing six per cent. interest, running 40 years, and deliverable in proportion of one dollar to every four actually paid in from other sources. Should the bonds sell for more than *par*, the overplus goes toward the payment of interest till the road is able to pay dividends

On the other hand, the State makes provision for the payment of this, so that the company are not taxed with it till their earnings enable them to meet it. The Governor and Senate have authority to appoint three of the Directors. In case the dividends should exceed six per cent., the excess goes to the purchase of the bonds. If the General Assembly at any time see fit by a special law to authorize a loan of bonds to any railroad company, the bonds are to be issued and provision made to meet the interest charge in like manner as above; while the same law must provide the ways and means for their payment at maturity.

The companies which have availed themselves in this State of the above provisions are—the New Orleans, Jackson, and Great Northern, the New Orleans, Opelousas, and Great Western, and the Vicksburg, Shreveport, and Texas Railroad companies.

In North Carolina the State has begun to encourage several works of internal improvements, by subscription to their stock, or endorsing their bonds to a certain amount. The Railroads to which the State had subscribed, previous to the last legislative session, were—

North Carolina Railroad.....	\$2,000,000
Raleigh and Gaston ".....	500,000
Wilmington and Manchester Railroad..	200,000
" " Weldon ".....	400,000

At the last session of the Legislature, bills were passed for assisting the extension of some of the above, and other additional undertakings. In most cases this is to be done by a stock subscription of two-thirds the estimated cost, but in some instances by endorsement. The principal of these are—

Names.	State Aid.
Atl. & East'n R. R.	two-thirds or \$1,000,000
West'n N. C. ".....	4,000,000
Fayetteville & Greensboro. ".....	"
Dan River Railroad.....	"
N. Carolina ".....	883,333
" " [ad'l.].....	1,000,000
Wilmington & Charlotte'l ".....	666,667
" " ".....	Endorse \$8,000 per mile for that part of the road east of Charlotte.

The subscription to the Western road is made conditional, the above amount of stock being taken only when \$2,000,000 shall have been subscribed by private individuals. Payments proceed *pari passu*, but are limited to \$400,000 per annum for the first two years.

Delaware.—This State has recently contributed a small sum to a road in progress in her bounds.

South Carolina.—This State has aided to a considerable extent the various railroads in her limits, but not in accordance with any general plan, or system. The work to which she has extended the greatest amount of aid is the Blue Ridge railroad now in progress, to which she has subscribed, we believe, \$2,000,000.

Missouri has made provision for works of internal improvement by loaning her credit to the following railroad companies:

Pacific.....	\$4,000,000
Iron Mountain.....	1,500,000
North Missouri.....	2,000,000
Hannibal and St. Josephs.....	1,500,000
	\$9,000,000

The total length of these roads will be, when completed, 1,070 miles. The State take a first mortgage for her loan, which averages \$8,411 per mile.

This statement includes nearly if not quite all the States that have recently advanced money or their credit to railroads. There have been numerous instances of donations of lands to railroad enterprises. The enumeration of these does not come within the object of this article.

Michigan Southern and Northern Indiana Railroad.

This company have recently issued a report of their operations and their present financial condition. In the month of February last, full authority was granted by the Legislature of Michigan for the companies owning the several lines then operated together, to form a single corporation. The same privilege had been previously granted by the States of Ohio, Indiana, and Illinois. On the 26th of April, accordingly, the articles of consolidation were finally sanctioned, and a consolidation of the different companies effected, under their present name.

The lengths of the several parts (main stem and branches) of this road will be as follows:

Main road from Chicago to Toledo.....	242 miles.
Branch from Adrian to Monroe.....	36.6 "
Jackson Branch (completed).....	22 "
Do. (in progress and nearly finished).....	10 "
Constantine Branch.....	4 "
Michigan City Branch.....	14 "
Goshen Line (completed).....	10 "
Do. (in progress).....	112 "

Total, completed and in progress .. 450.6 m's.

The Jackson Branch was to have been 40 miles in length; and its construction was required by the State. Its completion, however, has been stopped by an injunction granted by one of the courts of the State. At present it is in operation as far as Manchester, 22 miles, and is doing a profitable business. Ten miles further will open it as far as Napoleon, leaving a gap of only eight miles to complete it as far as Jackson. This will be built by an independent company under the general law of the State.

The Constantine Branch leaves the main road at White Pigeon. In addition to the four miles owned by this company, eight miles have been built by another organization, who have it in contemplation to extend it ultimately to Kalamazoo and Grand Rapids. The Goshen line leaves the main stem at Elkhart, Indiana. Its total length will be 122 miles. Ten miles at the western end are already in running order, and for 65 miles west from Toledo the rails are already laid down. Upon 50 miles of the western end the grading was about half completed, but the contractors were unable to prosecute the work with the necessary force, and the contract had, consequently to be cancelled.

About the 1st of June last, this portion was again put under contract, to be completed by the first day of April next, and the work is in progress. The iron is provided and ready, and no effort will be spared to bring this line into use at the earliest reasonably practicable day. This line will be about thirteen miles shorter than the present road between Elkhart and Toledo. It is remarkably level, having no grade over ten feet to the mile, going eastward, and with but four curves in the whole length, and one continuous straight line of seventy miles long.

When this line shall be brought into use, the distance and the time between Chicago and Lake Erie will be essentially reduced; and the business over it may be transacted with as much facility

and economy as can result from such natural advantages, beside rendering the capital invested therein available, and which has been heretofore unproductive.

This company own, jointly with the Chicago and Rock Island Railroad Company, the five miles of road upon which both companies enter the city of Chicago, upon which we have lately graded and laid a track for the separate use of the company; and the other company are laying one for their use—the business of each having so increased as to require this. In like manner, these companies own, jointly, very extensive and valuable grounds in the city, upon which it is proposed, and we now desire, to erect suitable passenger buildings. These are already necessary, and will very soon be so indispensable that they cannot longer be delayed without injury to the companies.

At Toledo the new depot grounds will soon be brought into use, and the whole business at that terminus transferred to them. These grounds are most eligibly situated in the Maumee river, the approach to which will be over a swing bridge, owned and wholly controlled by the company. Here the Cleveland and Toledo Railroad unites with our road, and the ferry heretofore used by that company will no longer be required, as they have erected a substantial bridge, which is now used in prosecuting the various works.

The Wabash Valley railroad comes on to this depot, and the Dayton and Michigan road, now in construction, will terminate here. So also the proposed railroad from Detroit to Toledo will make this its terminus. These grounds are ample, and the connection with the lake navigation offers the best facilities for the exchange of freight and travel.

A large passenger and car house is being built by this company. It is of brick, covered with tin, and will soon be completed. It is 480 feet long and 160 feet wide, and is intended for the joint use of all the companies.

A large union freight house, for like joint use, is to be erected.

We have erected a freight house of brick, with tin roof, 600 feet long and 80 feet wide, with all needful fixtures, which is intended for our lake freight connection.

We are also building two grain houses, with a stationary engine between them, both of which front upon the river, and are intended to store and transfer grain in bulk to vessels. They will hold 400,000 bushels of grain.

The immense produce of grain along our line renders these accommodations indispensable.

We are also building an engine house upon these grounds which covers eighteen engines. This comprises the buildings necessary at this terminus.

Our imperfect connection with the Lake Shore railroad, by means of the ferry, has been often a source of delay, and always of embarrassment. The increase of grain transportation has been so great, that we have been compelled to resort to most of the grain houses in Toledo, and in times of active business we have required so much room there as to be a source of inconvenience both to the town and the company. All this will soon be relieved.

The company own four steamboats on Lake Erie, three of which run in a line between Toledo and Buffalo, and one between the former and Dunkirk. A new boat is to be built the ensuing Winter, in the place of the Empire State, of the Buffalo line, using her engine, and which will be ready to take her place in the line early next season.

Our business and position require these boats as a part of and in connection with our line. Two of them are first-class boats, and the new one to be added to the Buffalo line will be of like character, and these, when the Goshen line is completed, will give us great advantages in the passage between Buffalo and Chicago. It is believed that no other line can compete, in time and comfort, with this, where the passenger seeks a

passage upon the lakes as a part of his line of travel.

By the connection at Toledo with the Cleveland and Toledo railroad and the Lake Shore road at Cleveland, we have a direct connection with New York by the Erie railroad from Dunkirk, and by the New York Central and the Erie, also from Buffalo.

We have direct connections with Philadelphia, Baltimore, Pittsburgh, Cincinnati, &c.

From Cleveland to Blairsville a road is in progress, to be completed next year, called the Mahoning railroad, which is of the same gauge as our road and the northern division of the Cleveland and Toledo road. By this line a nearer route will be opened from Cleveland to New York than any existing line, and having a uniform gauge with our road. This connection will be over the Pennsylvania railroad and by way of Easton upon the Delaware river. The saving of distance over this line, as compared with the existing lines, will be about 70 miles less than by the Erie, and about 90 miles less than by the New York Central.

This communication will also be considerably improved by the completion of the Sunbury and Erie road now in progress, securing from New York to the Mississippi a uniform gauge throughout. The various lines already constructed and in progress must always make Chicago, the western terminus of this road, the greatest focus of railroad travel in the West.

During the season, the line of railroad has been much improved. A large number of bridges and culverts, originally of wood, have been replaced with substantial stone structures. The embankments have been widened and strengthened; the ballasting increased, and the fencing improved. The general appearance of the road, and its capacity for business are also much improved.

The outfit or rolling stock of the company is in good condition, and consists of the following property—

74 locomotive engines, most of which are of first class and in good order.
81 first-class passenger cars.
38 second-class and emigrant cars.
7 baggage and mail cars.
18 baggage cars.
722 freight, covered platform, and cattle cars.
145 gravel and dump cars.
All these, except the last, are eight-wheel cars.

In the construction of the road, and as the work advanced from time to time, it became necessary to make several issues of bonds, some of which were secured by a mortgage upon one part of the road and some upon another. Some were issued by the Michigan Southern railroad company, and some by the Northern Indiana railroad company, and there came to be thus seven sets of bonds of these companies, amounting in the aggregate to the sum of \$5,500,000.

When the consolidation of these companies was effected, and their individual separate existence merged in the present corporation, it was deemed desirable to consolidate these securities, and to substitute therefor the obligation of this company, which is, of course, bound to meet them.

In looking forward, it was found that an additional sum of money would be required to complete the works in progress, and to place the road upon a proper basis. It was also obvious that the business would soon require a double track from Elkhart to Chicago, a distance of 100 miles. Desiring to place the bonded debt against the company upon the strongest basis as to security, to provide a sinking fund for its redemption, to secure every part of the debt alike, and to provide the means for the completion of the work, and for the double track above mentioned, the directors determined as follows—

To make a mortgage upon the whole line of the

railroad, with its appurtenances, to secure the bonds to be thereafter mentioned, in exchange for the present outstanding bonds of the company, as they may, from time to time, be surrendered, to the amount of \$5,500,000, or to raise the money to pay so much as may not be so surrendered.

The further amount of not exceeding \$1,250,000, to pay the floating debt of the company and to complete the Goshen line and the Jackson branch.

The further sum of \$1,250,000, for the purpose of making a double track upon such part of the line as may be found necessary, which last amount is not to be issued before the first of May, 1857, and not until an equal amount shall be added to the stock of the company, so that the amount of the bonded debt, secured by mortgage, shall not exceed the paid capital of the company.

Under this provision, a mortgage to the amount of \$8,000,000 has been executed to a trustee for the foregoing objects, and the same has been recorded in the several States through which the railroad extends.

The bonds run for 30 years, and a sinking fund is established that will meet the principal of the bonds at maturity. They will soon be ready to be exchanged for those now outstanding, and for which exchange we have already numerous applications.

The earnings of the road for the first nine months of the present year have been \$1,784,439 Corresponding period in 1854. 1,480,915

Increase \$303,524

Should the remainder of the year advance only at the same rate, the increase will be more than \$100,000 beyond the above. The receipts in 1853 were \$1,573,181; and in 1854, \$2,158,311. Those of 1855 will doubtless considerably exceed \$2,500,000.

General Statement of the Michigan Southern and Northern Indiana Railroad Co., July 31st, 1855.

Construction, including Goshen Air Line and Jackson Branch.....	\$9,522,199 37
Do. Erie & Kalamazoo Railroad.....	361,466 68
Equipment.....	1,343,085 44
Steamboats.....	418,457 10
Materials on hand in store and shops.....	256,567 24
Stocks, bonds, and mortgages.....	712,075 32
Cash in bank, and in hands of cashier and agents.....	291,166 71
Capital stock—	
Old, or dividend stock.....	\$4,082,600
Construction do.....	2,846,300
	6,928,900 00
Bonds—	
Michigan Southern mortgage, 1860.....	\$1,000,000
Do. bonds of 1863.....	500,000
Do. income, 8 per ct. 1857.....	500,000
North'n Indiana mortgage, 1861.....	1,000,000
Do. bonds of 1863.....	500,000
Goshen Air Line of 1868.....	1,500,000
Jackson Branch of 1865.....	500,000
	5,500,000 00
Erie and Kalamazoo R. R. bonds of 1862.....	300,000 00
Due State of Michigan in December, 1855.....	25,000 00
Bills payable.....	319,454 59
Dividends unpaid.....	20,034 69
Interest on stock and bonds unpaid.....	14,133 86
Sundry balances of account.....	52,815 57
Balance income account to July 1st, after payment of dividend ..	87,785 46
Total.....	\$13,248,124 17

The System of Monthly Reports for Employees.

By THOMAS D. STETSON, M.E.

Assuming ignorance to be the fundamental difficulty in the way of efficient and economical management of great roads, the method lately adopted on the New York and Erie railroad is worthy of close attention if not more general adoption. The fact, that there has been elaborated and put in operation a novel system of careful supervision is sufficiently well known, although few even among those most directly interested are allowed to recognize its existence except in its results. The monthly reports and their effects in stimulating the zeal of employees of every grade as also in sharpening the vigilance of all in any way connected for the time with the details of the machinery, are but a portion of the fruits of a great system, the details of which it is our present purpose briefly to present.

The plan involves on the one hand a very considerable amount of extra trouble and expense, among which is that of measuring and charging fuel for each locomotive, preparing concise but detailed and daily reports on the part of each conductor and station agent, paper and printing, and more than all the maintenance of a large office with eight active clerks, but, on the other hand, it faithfully depicts in the general office every fact of practical importance to the management.

Ignorance alone is a sufficient answer to many of the complaints of incompetency or fraud. There is no stand point from which the operations of the road may be viewed. The line is in every case long and crooked, literally as well as figuratively, and no one man can know and control its movements. The superintendence is portioned out among men who are in fact responsible to no one. The head has few opportunities to inform himself of the good or bad management beneath him. Occasionally, perhaps daily, he rides over some portion of the road stopping at stations and talking authoritatively. Every capable man feels conscious of his superior knowledge of his own department. The superintendent is reduced to mock inquiries, indiscriminate fault-finding, or general praise. He is working blindfold, and the moral effect on both himself and his men is enfeebling. Every dispute is a question of judgment between himself and others better informed.

The policy on the Erie road is the reverse of this in almost every respect. While each man is intrusted distinctly with a share of responsibility, the presence of the general head is everywhere felt to observe the result. The superintendent knows the capacity and daily use of every engine on the road; he has at hand the position of every car, the pounds of freight in each train, the average speed between any two stations, the delay at each and the freight handled, cars switched or train waited for. He knows the proportion of dead weight to useful load in every case, and to whom belongs the credit of every expedient for reducing it. He sees every car standing idly at a station, and whether loaded or unloaded; knows every conductor refusing freight, and whether or not the emergency justified him in doing so; in short makes each man independent of the good or ill will of every other, and responsible only to one legitimate and as far as possible omniscient director.

A daily report is received at the office from each conductor, and also from each station-agent on the line. Both reports mention the cars taken and left at each station, and the time of stopping and starting; thus these reports check each other, and correct the disposition to loiter at stations and run at a wasteful speed with a light load to make up the time. The agents alone report the weight of freight charged, the number and condition of cars on hand, the number and kind wanted, and the fuel or other material charged to engines, while the conductor alone reports the delays between stations with names of parties in charge.—Reports are sent from each station by the first train after mid-day, the particular train being specified by general order. Reports from conductors are by first train after arrival, and their reception is counted on with precision. Cars are designated briefly by numbers:—a simple number indicates a box car, one line beneath indicates a flat, two lines a cattle car, and an additional line above any number indicates that the same is "empty."

With an equipment of 3000 freight cars, if one half only are in motion, and of this portion half are running empty in either direction, only 750 are in legitimate use. If by removal of freight on the journey many of the latter are run partly filled, the amount of stock lying idle and of dead weight in process of useless transportation, assumes a place of great practical importance. The results of the new system, so far as have yet been manifested, are made sufficiently patent in the monthly reports alluded to. The method has been practiced about one year, and a small degree of progress has been exhibited each month over the last. How high a degree of economy of fuel may yet be realized in transporting, few will dare to predict. The Cornish miners, by a system of published reports of their engines, reduced the cost of pumping nearly 75 per cent. in 20 years, and this without introducing any new invention. Theory indicates that the best modern steam engines utilize but about 5 per cent. of the absolute power of the heat in steam, while the daily comparison of locomotives shows a marked difference in approximating even to this low standard.

Blue Ridge Railroad.

OFFICE OF THE BLUE RIDGE R. R. }
Charleston, Oct. 10th, 1855. }

To H. V. POOR Esq., Editor of the AM R.R. JOURNAL.

On my return from the mountains some days since my attention was arrested by an editorial notice of the Blue Ridge Railroad in your JOURNAL of the 8th of September, in which it is stated that "in Georgia all but six miles is under contract, and advancing steadily." That "in the tunnels through the Blue Ridge the work is progressing satisfactorily. More than 1,700 feet have been cut in the Western tunnel, and nearly 1,600 feet in the Eastern, of which 77 feet have been cut in the last week. There are yet 1,000 feet to finish, when daylight will shine through the Blue Ridge."

Now, Mr. Editor, there are errors in this statement which I cannot permit to have the sanction of my silence, and which I deem it a duty to correct.

The facts are these. The approach to the tunnel on the West, a heavy work, is nearly finished, but the tunnel itself has not been commenced on that side. On the Eastern side, the approach to

the tunnel is finished, and the tunnel entered some 80 to 100 feet, leaving about 5,700 feet to be finished, before "daylight is seen through the Blue Ridge," instead of 1,000 feet, as stated in the JOURNAL. It is an error also that 77 feet have been cut in the last month, and that all but six miles in Georgia is under contract; but the last is a small matter, and scarcely deserves to be noticed, as the work in that State, although costly in some portions, presents no serious difficulties.

You will, no doubt, agree with me, Mr. Editor, that no great public work, or private enterprise can be permanently advanced by the circulation of erroneous statements in relation to it. And as relates to the one in question, so important as it is to a section of country extending from the South Atlantic seaboard to the distant regions of the West, the completion of which is rendered certain by the aid which it has received, all departures from the facts, connected with its progress, to commend it to the public notice or favor, are wholly unnecessary. Tunnels in our day are no longer obstacles to the construction of railroads, more especially where the grade of the road may be reached by an indefinite number of shafts. This is the case with ours, and although little progress has been made with it, because there never has been an organized force, or an engine put upon it, yet we indulge the hope that we shall very soon be enabled to confirm all that you have stated in anticipation.

I am very respectfully

Your Ob't S't

H. GOURDIN, Pres't.

We publish the above correction with pleasure; although our satisfaction would have been greater to learn that the work was nearer completion. The statement in question was the substance of an article which appeared in some of our Southern exchanges about that date. We cannot give the name of the paper at present; as the number from which it was taken has long since gone the way of all—newspapers.

We shall be pleased to hear of the further progress of this important work. And as it appears that local journals cannot always be implicitly relied upon, we would suggest the propriety of some of the officers themselves occasionally furnishing facts in relation to the progress of such works.

Baltimore and Ohio Railroad.

The report of this road for the year ending the 30th ult., was read at the annual meeting of stockholders on the 4th inst. The business for the year was as follows:

Statement of the Revenue Earned by the Baltimore and Ohio Railroad Company from the 1st of October, 1854, to the 30th Sept., 1855.

	MAIN STEM.		
	Pas'grs.	Freight.	Total.
October, 1854.....	\$55,015	\$267,611	\$322,627
Nov., ".....	52,595	263,987	316,583
Dec., ".....	42,635	220,484	263,119
January, 1855.....	39,819	295,788	335,608
Feb'y, ".....	30,076	154,782	184,858
March, ".....	54,229	280,231	334,461
April, ".....	57,839	278,427	336,267
May, ".....	54,721	296,426	351,141
June, ".....	50,404	290,561	340,966
July, ".....	51,273	219,074	270,347
August, ".....	58,120	257,205	315,325
Sept., ".....	61,566	278,572	340,139
Totals.....	\$608,290	\$3,103,154	\$3,711,453

WASHINGTON BRANCH.

October, 1854.....	\$28,876	\$8,106	\$36,982
Nov., ".....	23,667	7,437	31,094
Dec., ".....	22,124	7,770	29,894
January, 1855.....	25,583	9,020	34,603
Feb'y, ".....	22,498	8,942	31,440
March, ".....	26,895	9,098	35,993
April, ".....	23,721	8,619	32,341
May, ".....	25,928	8,282	34,219
June, ".....	23,673	7,143	30,817
July, ".....	24,725	6,332	31,058
August, ".....	27,168	8,994	36,163
Sept., ".....	28,690	9,843	38,533

Total..... 303,544 \$99,090 \$402,635

Summary for both Roads during the fiscal year ending 30th Sept., 1854.

	Pas'grs.	Freight.	Total.
Main stem.....	\$608,299	\$3,103,154	\$3,711,453
Wash. Br.....	303,544	99,090	402,635
	\$911,843	\$3,202,245	\$4,114,088

A comparison of the revenue here exhibited with that of the previous year, shows an increase on the main stem of \$65,844 42, and on the Washington branch of \$33,405 46. Total increase of revenue, \$99,249 88.

From the above it will be seen that that the passenger earning on the Main Stem were 16.4 of the gross receipts. The increase to the revenue was about seven per cent., which is certainly satisfactory, considering the diminished business that offered itself last year, in the transportation of agricultural produce from the West. The increase has arisen from through travel of which the road has received a considerable amount from the opening of the Ohio Central Railroad. There has also been a slight increase in general freight. This, it is believed, would have been much larger, but for the severe winter season of last year, during which the Ohio river was closed for an unusually long time. Interruptions was also experienced at the Kingwood tunnel—one of ten days and another of two or three weeks. The cost of these delays has been estimated at over \$100,000.

THE COAL TRADE.

The following table shows the quantities of coal transported during the year from Cumberland, Piedmont, and Fairmount, and also the quantity from each place delivered at Locust Point, in the city, and at way stations respectively.

Statement exhibiting the quantity of Coal transported during the year ending 30th Sept., 1855.

Point of departure.	Deliv'd at Locust Point.	Deliv'd in the city.	Deliv'd at way stations.
	Tons.	Tons.	Tons.
Cumberland.....	170,053	29,108	3,059
Piedmont.....	177,441	26,098	15,233
Fairmount.....	34,671	15,214	1,046
Total.....	382,166	70,421	19,339

Point of departure.	For company's use.	Total delivered f'm each reg'n.
	Tons.	Tons.
Cumberland.....	13,165	215,887
Piedmont.....	41,838	260,611
Fairmount.....	12,858	63,790
Total.....	67,861	539,788

The quantity from those points which paid freight was..... 461,927
During the previous year..... 463,423

Decrease—tons..... 1,496

Though there was a slight decline in the quantity carried during the year, the revenue to the company was larger, as an increase to the tariff of rates was made early in the season. The coal

from Fairmount has proved an excellent article for making gas. The business in transporting coal is expected to increase extensively in time to come. New mines, said to be rich in bitumen, have been struck at Newburg and Tunnelton. The revenue from coal during the year has been as follows:

From Cumberland.....	\$463,240 94
" Piedmont.....	534,848 56
" Fairmount.....	223,537 99
" Newburg.....	930 14
" Wheeling.....	454 32

\$1,223,011 95

Showing an increase over the previous year of \$88,383 49.

The receipts of flour from the different stations on the line were—

Stations.	No of bbls.
Ellicott's Mills.....	47,947
Frederick.....	79,304
Harper's Ferry.....	154,569
Martinsburg.....	18,187
Cumberland.....	447
Moundsville.....	15,654
Wheeling.....	129,322
From other points on the main line.....	167,192
Washington Branch.....	37,428

Total.....570,748

EXPENSES OF OPERATING.

The following is a statement in detail of the expenses of transportation on the Main Stem during the year:

Expenses of Transportation on the Main Stem.

To Agents and clerks.....	\$49,641 95
Tonnage, conductors, and brakemen.....	118,483 04
Passenger conductors and brakemen.....	24,468 38
Tonnage enginemen.....	95,696 38
Passenger ".....	21,441 50
Tonnage firemen.....	54,121 89
Passenger ".....	10,399 35
Tonnage teamsters.....	13,768 14
Passenger ".....	3,214 44
Depot laborers, loading and unloading cars.....	63,657 64
Depot laborers, preparing fuel....	32,722 31
Maintenance of stock and renewal of harness.....	30,499 72
64,720½ gallons oil.....	56,563 01
80,100½ pounds tallow.....	9,880 44
109,631 " waste.....	9,798 61
36,853½ cords wood.....	65,974 08
Carried forward.....	\$660,230 88
Brought forward.....	\$660,230 88
To 74,738 12-20 tons coal.....	73,251 52
Stationery, printing and advertising.....	10,087 91
Gas, rent, candles, and Etherial oil.....	10,868 53
Cleaning engines.....	51,581 26
Discount on Uncurrent money....	28 57
Miscellaneous and contingent....	12,099 38
Sawing and loading wood on line af road.....	7,277 19
Western agencies.....	8,492 01
Telegraph operators.....	6,276 63
Water carriers.....	713 55

\$840,907 42

From this table it appears that the expenses of transportation have been less than during the previous year by \$31,898 09, or when compared with the revenue and expenses of the last year, it shows a reduction of 5.8 per cent.

The other expenses of the year have been as follows:

Repairs of Locomotives.....	\$302,376 93
" Burden cars.....	142,344 85
" Passenger cars.....	35,077 64

" Stationary machinery....	24,085 26
" Railway.....	548,844 69
" Bridges.....	49,750 64
" Water stations.....	13,084 94
" Depots.....	35,811 16
Watching Bridges.....	6,994 06
" Cuts.....	32,973 00
" Tunnels.....	4,016 75
Pumping water.....	8,481 64
General expenses.....	33,364 67
Legal do.....	14,744 53
Discount on uncurrent money.....	5,579 89
Losses by accidents, &c.....	11,925 23

\$1,269,455 88

Expenses of transportation.....840,907 42

Revenue.....\$3,711,453 85

Ratio of expenses to revenue, 56.86 per cent.

The number of loaded cars hauled into the streets of the city during the year is 21,186, and the cost of maintenance of stock and harness, probably chargeable to this work, has been \$44,344 96. The cost per car is therefore \$2 09½.

The company had on hand, at the close of the year 23,055 cords of wood and 1,445 tons of coal. The average price of the former paid during the year was \$1 79. In the previous year it was \$2 03.

WASHINGTON BRANCH

The business of the year shows an increase of \$25,242 from passengers, and from freight \$8,162.

The number of through passengers for the year was—

From Baltimore to Washington.....	\$89,962
" Washington to Baltimore.....	87,419

177,381

Southern travel and through tickets:	
Passengers Southward.....	19,421
" Northward.....	17,925

37,346

Total through passengers.....214,727

It will be observed that the number of passengers between Baltimore and Washington is less than during the previous year; that the number of Southern through passengers is greater, and the aggregate of through passengers is also smaller than during the last year. This is accounted for by the short session of Congress last winter and the prevalence of the yellow fever at Norfolk and Portsmouth which drove the southern travel from the usual lines of steamers passing by way of these places.

Expenses of Transportation—Washington Branch.

To Agents and clerks.....	\$7,933 82
Tonnage conductors and brakemen.....	2,147 12
Passenger ".....	6,051 57
Tonnage enginemen.....	1,440 69
Passenger do.....	3,258 75
Tonnage firemen.....	755 10
Passenger do.....	1,707 10
Tonnage Teamsters.....	1,396 10
Depot laborers, loading and unloading cars.....	14,016 65
Depot laborers, preparing fuel....	1,518 53
Maintenance of stock and renewal of harness.....	5,076 64
632 gallons oil.....	565 26
2,514 pounds tallow.....	314 25
18,328 " cotton waste.....	1,652 93
4,221½ cords wood.....	12,707 71
912 1-20 tons coal.....	2,734 70
Stationery, printing and advertising.....	1,626 44
Gas rent and candles.....	1,290 01
Cleaning engines.....	2,158 15
Miscellaneous and contingent....	340 35

Depot rent.....10,000 00

\$78,691 87

As compared with those of last year, there is a reduction of \$3,967 38, or when the revenue and expenses are compared, the reduction is equivalent to 13 per cent.

The other expenses have been:

Repairs of railway.....	\$67,938 54
" bridges.....	55,528 10
" depots.....	443 57
Water stations.....	2,033 83
Pumping water.....	730 60
Repairs of locomotives.....	9,701 20
" passenger cars.....	14,911 59
" burden do.....	8,835 66
General expenses.....	5,836 47
Losses by accident.....	630 33

\$116,589 89

Add expenses of transportation.....78,691 87

\$195,281 76

Revenue, \$402,635 07.

Ratio of expenses to revenue, 48.5 per cent.

GENERAL RETURN OF CASUALTIES.

During the past year there have been many casualties on the road, involving loss of life and damages to limbs. In the great majority of instances they have resulted from the carelessness of the parties who have suffered. For the first time an accurate record has been kept at this office of all occurrences of the kind during the year.

The whole number of sufferers by these casualties is found to have been sixty-one. Of these, thirty-six were instantly killed or fatally injured. Twenty-five persons received injuries more or less severe, but from which they have recovered, five have lost an arm or leg, and one both legs.

Of the entire number killed or injured, but two were passengers. Forty-six were employees; and the remaining thirteen were neither passengers or employees. Both the passengers were killed by their own carelessness, and by a direct violation of the rules of the service—one, in attempting to get on the train while in motion, and the other (a black boy) by occupying the platform of the baggage car in attempting to avoid payment of his fare.—Of the employees six were killed or injured while violating the rules of the road, fifteen by their own carelessness, ten by violating the rules of want of care by others, fifteen by pure accident. Of the thirteen persons, neither passengers or employees, eleven were killed or injured while walking or lying upon the track, and the other two by attempting to jump upon tonnage trains while they were in motion. Of the whole number, seven at least are known to have been intoxicated at the time of their injury or death.

It will be seen from the above that the ratio of casualties as between employees and all others is as three to one. The analysis also shows, however, that but one in three of these results from real accident, and that fully two-thirds of them are traceable to the want of ordinary care or attention to duty.

Steubenville and Indiana Road.

Vigorous measures, says the *Ohio State Journal*, are being taken to put this road in proper condition to make it efficient. We are glad to see that the Philadelphia Board of Trade look upon the route as one of much importance to that city.—the subject was recently brought before that body, and they passed a resolution approving of the plan of raising \$250,000, to stock the road and put it in complete order. They strongly urge upon the business men of Philadelphia the importance of coming forward promptly and subscribing this sum. It will no doubt be raised, as these men comprehend the importance of this road to the interests of their city. Columbus & Cen. Ohio have an interest in this road, and we are glad to see this evidence of its prosperity and usefulness.

Railway Share List,

Compiled from the latest returns—corrected every Wednesday—on a par valuation of \$100.

NAME OF COMPANY.	Length of Road.	Capital paid in.	Debt.	Total cost of road & equip't.	Gross Earnings for last official year.	Net Earnings for do.	Dividend for do.	Price of Shares.	NAME OF COMPANY.	Length of Road.	Capital paid in.	Debt.	Total cost of road & equip't.	Gross Earnings for last official year.	Net Earnings for do.	Dividend for do.	Price of Shares.
Atlantic & St Lawrence.....	149	1,538,100	2,973,700	6,019,929	470,647	6	72		Alabama and Tennessee.....	168			In progr.				
Androscog. & Kennebec.....	55	642,343	1,473,080	2,245,020	190,005	90,797	18		Memphis and Charleston.....	288	2,103,177	958,275	3,563,382	176,484	102,016		
Androscoggin.....	20	91,192	232,193	843,317	29,396	12,807	none	10	Mobile and Ohio.....	527	2,300,000	1,310,666	3,666,991				
Kennebec & Portland.....	72	1,160,319	1,683,384	2,843,705	208,568	114,069	none	20	Miss. Central.....	188	642,534	none	628,303				
Portl. Saco & Portland.....	51	1,367,000	119,237	1,486,327	259,330	124,038	6		N.O., Jackson, and G. N.....	100			In progr.				
Roston, Conc. & Montreal.....	93	1,808,093	1,059,512	2,771,310	233,234	120,834	none		N.O., Opelousas & G. W.....	350	1,309,428	476,143	1,825,812				
Cheshire.....	53	2,083,825	946,919	3,181,997	372,892	131,015	none		Vicksb., Shrevep. & Tex.....	195		30,670					
Concord.....	35	1,485,000	none	1,412,576	329,744	158,632	8	88	East Tennessee and Ga.....	111	1,000,000	1,500,000	2,500,000	81,590	48,103		
Northern, N. H.....	82	2,768,400	none	3,016,633	370,529	138,299	2 1/2	38 1/2	East Tennessee and Va.....	131	624,825	636,593	1,015,201				
Com't & Passumps. Riv.....	61	1,048,145	787,608	1,780,062	162,687	55,173	none		Nash. and Chattanooga.....	161	2,319,330	1,497,081	3,843,694	316,090	112,177	none	
Rutland & Burlington.....	120	2,233,376	2,662,396	5,378,428	394,971	214,798	none		Covington & Lexington.....	93							29
Vermont Central.....	117	5,000,000	3,550,236	8,463,366	820,119	214,798	1 1/2		Lexington and Frankfort.....	29	431,091	159,299	635,363	90,930	34,364		
Boston and Lowell.....	27	1,830,000	300,510	2,158,932	442,491	104,175	6	60	Lexington & Big Sandy.....	60			428,057				
Boston and Maine.....	83	4,076,974	150,000	4,179,535	906,700	421,561	8 1/2	87 1/2	Lexington and Danville.....	65	540,117	61,525	570,463				
Berkshire.....	21	600,000	none	600,000		42,000	7		Louisville and Frankfort.....	65	698,236	669,061	1,589,566	244,014	96,902	6	
Boston and N.Y. Central.....	74	2,234,600	1,200,000	3,310,948	102,352	42,335	none	2	Atlantic & Gt. Western.....	254	866,939	77,294	613,231				
Boston and Providence.....	55	3,160,000	421,700	3,611,821	272,347	100,078	6	65 1/2	Bellevue and Ind.....	118	1,881,598	1,200,612	2,805,821	238,010	114,592	none	
Boston and Worcester.....	68	4,500,000	587,553	4,856,370	952,894	542,139	6 1/2	53	Cleveland and Erie.....	95							
Connecticut River.....	52	1,691,110	254,043	1,802,244	277,770	102,942	4 1/2	50	Clev., Col. and Cin.	141	4,473,721	374,127	4,846,133	1,162,601	557,905	9	104 1/2
Eastern, Mass.....	60	2,583,400	2,850,325	4,447,459	730,269	340,425	7	50	Clev., Zanesv., and Cin.	87							
Essex.....	20	299,107	469,311	747,008	51,246	none	none		Cleveland and Toledo.....	200	2,675,425	2,689,301	5,124,629	736,272	396,980	10	73 1/2
Fitchburg.....	67	3,540,000	324,992	3,730,965	704,638	272,716	6	70 1/2	Clev. and Mahoning.....	103			628,533				
Fitchburg and Worcester.....	14	238,140	74,099	333,884	42,647	19,274	6		Clev. and Pittsburgh.....	133	2,086,770	2,516,162	4,818,153	450,215	255,868		60
Lowell and Lawrence.....	12	200,000	140,000	363,658	56,135	23,823	6	88	Cin., Ham'tn & Dayton.....	60	2,100,000	1,464,364	2,961,973	483,620			74
Nashua and Lowell.....	14	600,000	16,000	654,603	191,887	55,877	6 1/2		Cin., Wilm. & Zanesv.....	131	1,120,450	1,131,265	2,326,459				33
N. Bedford and Taunton.....	21	500,000	none	533,953	198,491	56,533	6 1/2		Col., Piqua, and I. dian.....	72							
Newburyport.....	14	137,260	154,554	287,418	32,677	4,669	none		Columbus and Xenia.....	64	1,418,350	311,032	1,440,447	340,781	168,949		92
Old Colly and Fall River.....	87	3,015,100	314,834	3,434,164	649,656	142,800	6	89 1/2	Dayton, Xen. & Belpre.....	63	437,838	422,658	860,496				
Pittsfield & N'th Adams.....	18	450,000	none	443,677	50,895	25,519	6	11	Dayton and Michigan.....	140	1,076,602	393,011	1,185,826				22
Vermont and Mass.....	77	2,232,540	1,046,626	3,207,867	275,523	66,383	none	90	Eaton and Hamilton.....	42	448,411	835,994	1,345,573	113,859	53,256		26 1/2
Western, Mass.....	155	6,150,000	6,680,520	9,953,258	1,763,944	718,705	7 1/2	49	Little Miami.....	65	2,963,921	1,171,785	3,648,172	681,562	336,708		96
Worcester and Nashua.....	46	1,141,000	128,244	1,294,708	209,118	82,959	2 1/2		Mad River and L. Erie.....	205	2,461,650	2,572,932	4,446,661				
Providence and Worcester.....	43	1,522,200	351,500	1,843,632	316,616	131,812	7	127	Ohio Central.....	138	1,520,927	3,485,076	4,283,443	Recently opened.	none	34	
Hartford and N. Haven.....	72	2,359,000	989,000	3,313,932	730,012	352,790	10		Ohio and Penn.....	187	2,451,700	3,219,000	5,670,700	1,111,626	662,117	9	80
Hart'd, Prov. and Fishkill.....	120	1,899,115	1,179,567	3,730,551	166,212	94,192	none		Pittsb'g, Maysv'e & Cin.....	50			343,882				
Housatonic.....	110	2,000,000	474,177	2,424,066	330,792	15,351	4		Sand'y, Mans' & New'k.....	127	1,350,000	2,206,357	3,552,357	328,958	164,479	none	
Naugatuck.....	67	1,031,800	673,995	1,577,167	238,266	none	4		Scioto & Hocking Valley.....	135	403,975	509,050	888,858				
N.Y. and N. Haven.....	62	2,992,000	2,262,407	4,980,407	906,018	335,611	217	36	Spring, Mt. Vernon & P.....	113	1,000,000	950,000					
N. Haven and N. London.....	60	734,258	735,165	1,450,318	103,986	217	none		Tol., Wabash & St. Louis.....	242	2,500,000	4,530,000					
N. London, W. & Palmer.....	60	608,000	1,007,826	1,527,827	137,000	3,717	none		Cin., Log. and Chicago.....	255	4,196,679	1,006,125	2,080,433				12 1/2
Norwich and Worcester.....	68	2,122,300	796,886	2,596,488	304,651	95,456	6	32	Evansv'e & Crawfordsv.....	170	814,000	725,000					
Buffalo, Corn. and N. Y.....	100	1,482,766	1,402,244	2,597,963	123,147	60,762	none		Ind. and Cincinnati.....	88	1,213,723	1,442,859	2,178,461	356,012	193,142	7	62
Buffalo and N. Y. City.....	92	798,439	2,557,849	3,401,868	254,770	52,030	none		Indiana Central.....	66	608,829	1,251,387	1,669,000	321,400	186,224		
Buffalo and St. Line.....	81	1,300,000	1,030,000	2,343,849	607,018	204,836	10		Ind., Clev. & Pittsburg.....	83	834,157	1,101,971	1,671,544				
Cayuga & Susquehanna.....	55	687,000	531,318	1,093,624	120,849	68,580	none	34 1/2	Jeffersonville.....	66	1,014,252	694,000		206,544	94,318	none	
Hudson River.....	144	3,757,891	893,804	12,391,363	1,753,956	102,657	none		Lafayette and Indianapolis.....	64							
Long Island.....	86	1,876,148	626,298	2,518,261	279,520	2,830,293	8	91 1/2	Madison and Indianapolis.....	87	1,647,500	1,589,881	3,237,381				
New York Central.....	534	23,067,415	11,947,121	35,907,374	5,918,334	2,806,026	7	52 1/2	New Albany and Salem.....	258	2,535,121	5,281,548	6,643,189	645,827	371,402	none	
New York and Erie.....	464	10,023,958	25,126,669	35,439,431	5,351,037	2,806,026	7	22 1/2	Peru and Indianapolis.....	73		858,314		150,000	90,000	none	25
New York and Harlem.....	136	6,716,050	3,527,596	8,127,388	1,587,527	154,584	none		Terre Haute and Ind.....	73	924,100	456,000	1,465,321	239,992	159,323	10	91 1/2
Northern, N. Y.....	119	1,611,527	4,522,413	6,435,565	108,764	63,880	none	3 1/2	Chicago and Rock Is'd.....	182	3,141,600	2,387,165	5,214,152				
Oswego and Syracuse.....	37	374,920	219,594	677,754	106,764	76,327	5		Chicago and St. Louis.....	220	2,300,000	1,325,000	3,625,000				
Rensselaer & Saratoga.....	25	610,000	140,000	888,182	231,348	76,327	5		Chc., St. Paul & F'd du Lac.....	178	2,300,000	1,325,000	3,625,000				
Saratoga and Wash'n'g.....	64	899,900	1,053,254	1,891,993	183,959	37,666	none		Galeana and Chicago.....	298	4,334,800	1,189,304	5,866,263	1,506,710	942,231	17	116 1/2
Syracuse & Bingham'n.....	71	731,614	1,118,751	1,636,117	Recently opened.	66,407	none		Illinois Central.....	707	1,419,440	18,001,426	17,698,069				95 1/2
Troy and Boston.....	27	439,492	493,500	1,017,473	152,648	66,407	none		Peoria and Oquawka.....	93	569,889	518,544	1,388,342				
Watertown and Rome.....	97	1,370,428	544,768	2,040,543	393,954	152,752	5	70	Ohio & Miss. (Wat. Div.).....	147	1,780,255	3,292,463	4,870,586	Recently opened.			
Belvidere and Delaware.....	50	1,000,000	1,177,376	2,177,376	124,301	44,825	none		Terre Haute and Alton.....	173	2,251,420	1,258,064	3,537,424				
Camden and Amboy.....	64	1,500,000	1,299,223	4,793,184	1,682,486	552,456	12	128	Detroit and Milwaukee.....	185	838,000	1,128,964	1,966,969				
Camden and Atlantic.....	31	240,125	798,596	1,499,185	60,673	61,700	none		Mich. Central.....	282	6,021,916	6,142,023	10,300,147	2,215,283	879,656		96 1/2
New Jersey.....	75	2,000,000	1,632,085	3,506,226	378,145	180,796	7	124 1/2	Mich. South'n & N. Ind.....	475	6,928,900	5,768,000		2,410,000	875,000	10	97
New Jersey Central.....	62	1,155,715	331,500	1,549,622	233,506	99,377	6		Green Bay, Mt. & Ch.....	155	764,076	442,726	2,194,593				
Morris and Essex.....	66	1,154,500	281,111	1,212,911					Milwaukee and Miss.....	700	988,665	1,827,584	2,704,593	465,051	307,632		
Cumberland Valley.....	109	2,865,175	1,865,897	4,140,365	In progr.			75	Milwaukee and Water'n.....	22	354,861	152,000	514,238				
Del. La. & Western.....	20	600,000	750,000						Milwaukee and Horicon.....	92			31,000				
Erie and North East.....	28								Milwaukee & La Crosse.....	69							
Harrisv'g & Lancaster.....	38							48 1/2	Racine and Miss.....	68							
Little Schuylkill.....	87								Hannibal and St. Josephs.....	228							
Northern Penn.....	26	12,104,820	6,965,884	17,158,495	3,409,192	1,977,533	87 1/2		North Missouri.....	228							
Pennsylvania.....	98	8,219,672	10,244,442	18,464,114	3,781,639	2,140,42											

Railroad Bonds.

The following quotations are ex-interest.

NAMES OF COMPANIES.	Amount of Loan.	Description of Bonds.	Rate Int.	Interest payable.	Where payable.	Due.	Offered.	Asked.
Alabama and Tennessee River	\$838,000	1st mortgage, convertible	7	1st Jan, 1st July	N.Y.	1872	87 1/2	
Buffalo and State Line	500,000	Do. inconvertible	7	April, October	"	1866	98	
Belleville and Indiana	600,000	Do. convertible	7	Jan'y, July	"	1866	100	
Do. do.	200,000	Real estate, convertible	7	Jan'y, July	"	1858	90	92 1/2
Do. do.	200,000	Income, guar. Cl. Col. & Cin.	7	Feb'y, August	"	1859	87 1/2	
Central Ohio	1,250,000	1st mort. conv. east. sec.	7	Divers	"	1861-64	90	93 1/2
Do. do.	800,000	2d do. inconvertible	7	March, Sept.	"	1865	75	77
Cincinnati, Hamilton, and Dayton	500,000	1st mortgage inconvertible	7	20 Jan, 20 July	"	1867	95	95
Do. do.	465,000	2d do. do.	7	May, Novemb.	"	1880	87	88
Cincinnati and Marietta	2,500,000	1st mortgage, conv. till 1862	7	Jan'y, July	"	1868	85	85
Cincinnati, Wilmington, and Zanesville	1,300,000	Do. convertible	7	May, Novemb.	"	1862	87 1/2	
Cleveland, Painesville, and Ashtabula	567,000	Do. inconvertible	7	Feb'y, August	"	1861	90	90
Cleveland and Pittsburgh	800,000	Do. convertible	7	Feb'y, August	"	1860	90	93
Do. do.	1,200,000	Do. on Branches	7	March, Sept.	"	1873	85	85
Cleveland and Toledo	525,000	Do. inconvertible	7	Feb'y, August	"	1863	87	88 1/2
Chicago and Mississippi	800,000	Do. conv. till 1857	7	April, October	"	1862-72	89	89
Do. do.	1,200,000	Do. inconvertible	7	April, October	"	1862-72		
Covington and Lexington	400,000	Do. do.	6	April, October	"	1862	70	75
Do. do.	1,000,000	2d mortgage, convertible	7	March, Sept.	"	1883	82 1/2	
Delaware, Lackawanna, and Western	1,500,000	1st mortgage, do.	7	April, October	"	1875	90	93
Fort Wayne and Chicago	1,250,000	Do. conv. till 1863	7	Jan'y, July	"	1873	80	85
Galena and Chicago	2,000,000	Do. inconvertible	7	Feb'y, August	"	1863	94	95
Do. do.	2,000,000	2d mortgage, do.	7	May, Novemb.	"	1875	84	84 1/2
Great Western (Illinois)	1,000,000	1st mortgage, do.	10	April, October	"	1868	85	90
Green Bay, Milwaukee, and Chicago	400,000	Do. convertible	8	10 April, 10 Oct.	"	1863	92	95
Jeffersonville	300,000	Do. 2d sec. inconv.	7	April, October	"	1873		75
Indiana Central	600,000	Do. convertible	7	May, Novemb.	"	1866		90
Indianapolis and Bellefontaine	450,000	Do. do.	7	Jan'y, July	"	1860-61		91 1/2
Indianap. & Cin'ti (for Lawb. & U.M.)	500,000	Do. conv. till 1857	7	March, Sept.	"	1866		94
La Crosse and Milwaukee	950,000	1st mort. 1st sec. conv. till 1864	8	May, Novemb.	"	1874		83
Lake Erie, Wabash, and St. Louis	3,400,000	1st mortgage, conv. till 1859	7	Feb'y, August	"	1865	80	85
Little Miami	1,500,000	Do. inconv.	6	2 May, 2 Nov.	"	1883		85
Michigan Central	1,000,000	No mortgage, convertible	6	April, October	Bost.	1860	101	102 1/2
Do. do.	600,000	Do. do.	8	March, Sept.	"	1869	101	102 1/2
Milwaukee and Mississippi	600,000	1st mort. 1st sec. conv. till 1857	8	Jan'y, July	N.Y.	1862		100
Do. do.	650,000	Do. 2d do. 1858	8	April, October	"	1863		97
Do. do.	1,250,000	Do. 3d do. 1860	8	June, Decemb.	"	1877	85	85
New Albany and Salem	500,000	Do. 1st section	10	April, October	"	1858-62	102	102
Do. do.	2,325,000	Do. oth. sec. con. till 1853	8	May, Novemb.	"	1864-75	83	85
Northern Cross	1,200,000	1st mortgage, convertible	8	Jan'y, July	"	1873	94	95
Ohio and Indiana	1,000,000	Do. do.	7	Feb'y, August	"	1867		100
Ohio and Pennsylvania	1,750,000	Do. do.	7	Jan'y, July	"	1865-66		102 1/2
Do. do.	2,000,000	Income, convertible	7	April, October	"	1872		80
Pennsylvania (Central)	5,000,000	1st mortgage, conv. till 1860	6	Jan'y, July	Phila.	1880	94 1/2	97 1/2
Scioto and Hocking Valley	300,000	Do. 1st sec. conv.	7	May, Novemb.	N.Y.	1861		85
Staubenville and Indiana	1,500,000	Do. convertible	7	Jan'y, July	"	1865		80
Terre Haute and Indianapolis	600,000	Do. do.	7	March, Sept.	"	1869		
Terre Haute and Alton	1,000,000	Do. do.	7	Feb'y, August	"	1862-72		85
Do. do.	2,000,000	2d do. do.	8	Feb'y, August	"	1870	78	79

The following quotations include the accrued interest.

NAMES OF COMPANIES.	Amount of Loan.	Description of Bonds.	Rate Int.	Interest payable.	Where payable.	Due.	Offered.	Asked.
Baltimore and Ohio	2,500,000	Mortgage	6	April, October	Balt.	1885	82	83
Do. do.	1,125,500	Do.	6	Jan'y, July	do.	1875	88	89
Chicago and Rock Island	2,000,000	1st mortgage, conv. till 1858	7	10 Jan, 10 July	N.Y.	1870	95	95 1/2
Erie Railroad	3,000,000	1st mortgage	7	May, Novemb.	"	1867	111	112
Do. do.	4,000,000	2d mortgage, convertible	7	March, Sept.	"	1859	95	97
Do. do.	6,000,000	3d mortgage	7	March, Sept.	"	1883	92 1/2	93
Do. do.	4,000,000	Not conv. Sink Fund, \$420,000	7	Feb'y, August	"	1875	87	87 1/2
Do. do.	4,351,000	Convertible, Inscription	7	Feb'y, August	"	1871	78	80
Do. do.	3,500,000	Convertible	7	Jan'y, July	"	1862	80	83
Hudson River	4,000,000	1st mortgage, Inscription	7	Feb'y, August	"	1869-70	100 1/2	100 1/2
Do. do.	2,000,000	2d do. do.	7	16 June, 16 Dec	"	1860	90	91
Do. do.	3,000,000	3d do. convertible	7	May, Novemb.	"	1870	73 1/2	74
Illinois Central	17,000,000	Mortgage, inconvertible	7	April, October	"	1875	78	78
Do. (Free Land)	3,000,000	M'ge 345,000 acrs-priv 7 shars	7	March, Sept.	"	1860	81	83 1/2
Michigan Southern	1,000,000	1st mortgage, inconvertible	7	May, Novemb.	"	1860		100
New York and Harlem	1,500,000	Do. do.	7	May, Novemb.	"	1861-72	90	90 1/2
New York and New Haven	750,000	No mortgage, do.	7	June, Decemb.	"	1855-60	80	83 1/2
New Haven and Hartford	1,000,000	1st mortgage, do.	6	Jan'y, July	N.Y.	1873		97 1/2
Northern Indiana	1,000,000	Do. do.	7	Feb'y, August	"	1861		100
Do. Goshen Branch	1,500,000	Do. do.	7	Feb'y, August	"	1868	85	87
New York Central	8,287,000	No mortgage, do.	6	May, Novemb.	"	1883	91	91 1/2
Do. do.	3,000,000	No m'ge conv. from June 57-59	7	15 June, 15 Dec	"	1864	102	102 1/2
Panama, 1st issue	900,000	Convertible till 1856	7	Jan'y, July	"	1866	103	104 1/2
Do. 2d do.	1,478,000	Do. till 1858	7	Jan'y, July	"	1866	103	104 1/2
Reading, issued 1843	1,573,000	Mortgage, inconvertible	6	Jan'y, July	Phila.	1860		
Do. do. 1844, '48, '49	1,300,000	Do. convertible	6	Jan'y, July	"	1860	95	96
Do. do. 1849	3,469,000	Do. inconvertible	6	April, October	"	1870	83 1/2	84

CITY SECURITIES.	Int't payable.	Off'd p. ct.	Ask'd p. ct.	CITY SECURITIES.	Int't payable.	Off'd p. ct.	Ask'd p. ct.
New York, 7 per ct. 1857	Feb'y, May	101		Milwaukee, 7 per ct. coup.	X	92	94
Do. 5 do. 1858-'60	August and	98		New Orleans, 6 per ct. ep. R.R. X	Divers		78
Do. 5 do. 1870-'75	November	100	100 1/2	Philadelphia, 6 per ct. 1876-'98	Jan'y, July	92 1/2	93 1/2
Albany, 6 per ct. coup. 1871-'81	X Feb'y, August	97	98	Pittsburgh, 6 per ct. coup.	X Divers		78
Alleghany, 6 per ct. coup.	X Jan'y, July	72	75	Quincy, 8 per ct. coup.	X Jan'y, July		95
Baltimore, 6 per ct. 1879-'90	Quarterly	97	98	Racine, 7 per ct. coup.	X 10 Feb'y, Aug.		87 1/2
Boston, 5 per ct. coup.	X April, October		100 1/2	St. Louis, 6 per ct. coup.	X Long X	82 1/2	83 1/2
Brooklyn, 6 per ct. coup.	X Jan'y, July	100	101	Do. do. Municipal	X Do.	82 1/2	83 1/2
Clev'Pd, 7 per ct. ep. W.W. 1879	X Do. do.	103	105	Sacramento, 10 p. ct. ep. 1862-'74	X Do.		81
Cincinnati, 6 per ct. coup.	X Divers	92 1/2	92 1/2	S.Frisco, 7 p. ct. ep. 1865, pay. N.Y.	X May, Novemb.		88
Chicago, 6 per ct. coup.	1873-'77 X Jan'y, July	91	91 1/2	Do. 10 p. ct. ep.	X Do. do.	96	98
Detroit, 7 per ct. ep. W.W. 1873-'78	X Feb'y, August	102 1/2	103	Do. 10 do. pay. N.Y.	X Jan'y, July	105	
Louisville, 6 per ct. ep.	1880-'83 X Divers		86	Wheeling, 6 per ct. coup.	X Divers	74 1/2	75 1/2
Memphis, 6 per ct. coup.	1882 X Jan'y, July		72 1/2	Zanesville, 7 do.	X April, October		97 1/2

Cincinnati Stock Sales.
By HEWSON & HOLMES.

For the week ending October 17th, 1855.

\$5,000 Cov'g. & Lex. 7 per ct. 2d Mort. Bonds	66
4,000 " " 10 per ct. Income Bonds	67 1/2
2,000 Cin., Wil. & Zanes. 7 per ct. 2d Mort. Bonds	68
6,000 City of Maysville, 6 per ct. Bonds, coupons payable semi-annually in New York	40 (& int.)
1,000 Little Miami, 6 per ct. Bonds, 1st Mort.	30
800 " " Div. Scrip	90
365 Ind. & Cin. 7 per ct. Div. Bonds	70
2,000 Marietta & Cin. 7 per ct. Income Bonds	60
100 Shares Cincinnati & Chicago	12 1/2 (& int.)
" " " "	12 1/2
Columbus & Xenia	23
" " " "	23
Peru & Indianapolis	25
Mad River & Lake Erie	25
" " " "	26 1/2
Covington & Lexington	20
Cincinnati, Wilmington, & Zanesville	31
" " " "	32 1/2
" " " "	33
Cin. Har. & Ind.	8
Little Miami	96
Cincinnati, Hamilton, & Dayton	74
Central Ohio	17
Ohio & Mississippi	6 1/2 (& int.)
" " " "	6 1/2
" " " "	6 1/2
" " " "	6 1/2
" " " "	7 1/2
" " " "	8

Extract from De Coppel & Co.'s Money Circular for the European Steamer of the 24th. Inst.

New York, Oct. 22nd, 1855.

At the close of our last advices of 16th inst., our Stock Market was buoyant, with a fair prospect of a further advance. This expectation has met with disappointment; the news of a further rise in the rate of discount of the Bank of England, and of forced movements of specie from London to Paris, has a depressing influence. This feeling has increased for the last two days, when it became known that about \$700,000 of gold were shipped by the Havre steamer, in the face of European Exchanges, ostensibly having no margin upon such operations, thus leading to the fear that the drain of specie from this country might continue, influenced by other than the natural causes of commerce. These circumstances have produced an uneasiness which has resulted in a decline of stock in spite of a Money Market tending during the week lower and lower, can. This decline has been felt more particularly upon Railroad and fancy stocks, State securities having remained comparatively steadier.

Transactions in State stocks have been quite limited, and we notice but few sales in Indiana 6s, which, after having risen to 82 3/4, have receded to 82; in Louisiana at an advance of 1, and in Tennessee at a decline of 2 per cent., in Virginia 6s of 1, and in Missouri 6s at a decline of 1 per cent.—In City and County securities some retail demands have been supplied at receding prices; among these we can mention some bonds of the cities of Rochester and Albany, and of the counties of Clark and Montgomery, Ky.

The demand for R. R. bonds has been but very limited generally. At private sale we notice some small transactions in the bonds of the Green Bay, Milwaukee and Chicago 1st mortgage; of the Cincinnati, Wilmington and Zanesville 1st mortgage; of the Milwaukee and Mississippi 3d section, and of the Covington and Lexington 2d mortgage.—At the Board there were considerable transactions in Illinois Central construction bonds, at a gradual decline of 3 3/4 c. There were also a few sales of Freeland bonds at a decline of 1/2 c., and of Chicago and Rock Island 1st mortgage at a decline of 1 per c., and of New York and Harlem, 1st mortgage at former rates; of Erie 7s, 1875, at a decline of 1 and of 7s, 1883, of 1/2 per cent.

The decline on Railroad shares has been general and heavy. It is 3 1/2 per cent. on Chicago and Rock Island; 3 1/2 c. on Galena and Chicago; 2 1/2 c. on Hudson, 2c. on Michigan Central; 2c. on Michigan Southern; 2 1/2 c. on Reading; 3c. on Cleveland and Toledo, which are quoted, dividend off, and 2 1/2 per cent. on Erie. Most of these actively dealt in. Money for loans on demand has been easier during the week, the rate still remains 7 1/2.

For stock loans on time, 10 to 13 per cent. is readily paid; with a disinclination on the part of lenders to loan for a fixed sum. Paper remains from 7 to 10 per cent. according to length and class.

Exchanges on London and the north of Europe are looking up, whilst Paris is heavy and not sought after. Principal sales on London, \$1 08½ to \$1 09½; on Paris \$5 17½ to \$5 18¾.

DE COPPET & Co.

American Railroad Journal.

Saturday, October 27, 1855.

Accidents on Railroads.

Of the hundreds who are annually maimed or slaughtered on our railroads, more have certainly fallen victims from carelessly walking or lying on the track, than from any other half dozen causes put together. Accidents arising from collisions or trains getting off the track, are immediately laid hold of by the press, and circulated all over the country; but the majority of those who are killed while walking or lying on the track are never heard of, beyond their immediate circle of acquaintances. While improved machinery and skill, too, are beginning to diminish the smash-ups, formerly so common on our roads, there would seem to be an increase of accidents from this cause, in proportion to the increased number of miles of railroad going into operation. The evil, besides, has been rather augmented than diminished by the building of double tracks. When these had no existence, the individual who trespassed on the single track by getting off it, on the approach of a train, might be considered as perfectly out of danger; but such is not the case where a double line has been laid down. As long as a certain proportion of mankind remain "dull of hearing," are easily frightened, or naturally stupid, the meeting of two trains will always afford increased opportunities for railroad slaughters; as such parties are sure to step from one track to the other, hardly anticipating the possibility of such an occurrence.

A few days since, we witnessed an accident of this description, on the New York and Erie road, about six miles from Jersey City. The victim in this case, on the approach of a train from the west, stepped on the latter track, while the way train, then at a high speed, was within little more than a hundred yards' distance. The engineer whistled, the brakes were applied, and the train stopped in a few seconds. The individual, however, had been struck dead, probably without being aware of the danger.

There is nothing in this, but what is occurring every day on our railroads; and yet for such occurrences, not only do the officers of a road suffer the painful feelings necessarily thus induced; but trains have to be instantaneously stopped—often at great risk, and always with a loss of valuable time, besides other inconveniences. The public, too, are disposed to growl, newspapers denounce, and companies are pretty certain to be annoyed with prosecutions, too happy if they can escape without having to pay heavy damages.

Now this whole thing is a grievous wrong, and ought to be, as it can be, instantly put a stop to. In Europe not one accident occurs from this cause for twenty in this country; though the population in the former is much more dense than in the lat-

ter, and the liability to injury or loss of life, thereby correspondingly increased.

What we want in this country is more stringent legislation on the subject. Every act of unnecessary trespass on the track of a railroad, should be made punishable by law. This would deter all parties from unnecessarily venturing on it, near the stations, where most mischief of this sort happens; while it would drive from other parts of the road, the timid and the thoughtless, who are by far the majority of our present victims. The law would also take sides, as it ought to do, with the companies in all such cases. At present, individuals trespass at their own risk; but this is not enough, as sad experience has shown. The bold and reckless venture with no qualms of conscience that they are *breaking the law*. "One is taken and the other left," the former, probably, having ventured into the danger by the example of the latter, who escaped, because he possessed qualities of body or mind which the other lacked.

Legislation has been entirely too much one-sided. It has tied down corporations by every possible means, and protected the public against them. Judicial decisions, too, we believe, have been more or less tinged with the feeling, that where mischief took place, the companies *must* have been in the wrong. We think the time has come to give both sides a fair chance. The public, so far, have certainly been greater gainers from the construction of railroads than the companies themselves. Then why for ever legislate, as if the latter were a common nuisance, always in the wrong, and always disposed to maliciously inflict loss and damage on the public? Why not protect them as well as other parties from them? We are fully satisfied that this evil can be remedied, in a great measure, at least, in a very short time. Will legislators please give the subject a due measure of attention? Will they make trespassing on railroads as punishable as trespassing in an orchard, or other private property, putting it under the ban of the law, and thus doing their duty to rescue their constituents from running in to the jaws of destruction?

New York and Erie Railroad.

Below we give an abstract of the miles run and cost of materials used on the several divisions of this road, for the month of August, as furnished by the General Superintendent's table for that month:

The total number of miles run was 259,590, at a cost for engineers and firemen of \$13,655 31, or 5.26 cents per mile run. The quantity of oil used was 1,972¾ gallons making 16.45 miles to one pint. This includes oil for head lights. Number of pounds of waste used 5,364½, do. of tallow 5,351¼. The total cost of these three commodities was \$3,926 76, or 1.27 cents per mile run.—The cost of repairs of engines was \$13,475 65, or 5.19 cents per mile.

Of fuel used there were 8,437½ cords costing \$30,303, or \$3.59 per cord. This makes 30.77 miles run to the cord, or 11.67 cents per mile.—This is slightly higher than last year, the difference being occasioned by the increase in the price of the commodity.

The following is a summary of the total expenses for the above purposes, with the amount of tonnage transported on the road during the same period:

Divisions.	Miles run.	Total cost.	Total cost per mile run.
Eastern Division, Union railroad and Newb'g branch	75,559	\$22,984 75	30.42
Delaware Division....	56,962	13,066 46	22.94
Susquehanna do.....	69,871	18,998 96	20.03
Western do.....	57,198	10,681 47	18.67
Total	259,590	\$60,731 64	

Tons of useful weight carried 1 mile.
Pas'gr cars l'd and dead 1 mile.

Eastern Division, Union railroad & Newburg Branch	114,460	2,545,792	5,244,204
Delaware do.....	103,216	3,351,638	6,993,452
Susquehanna.....	128,399	4,270,885	8,819,499
Western do.....	91,048	2,028,318	4,209,677
Total	437,123	12,196,628	25,266,832

With the exception of the cost of fuel, the table shows a decrease on every item, as compared with August, 1854. On the repairs of engines, the reduction is fully equal to ten per cent.

We have no doubt that the publication of these monthly statements, with the names of the Engineers who have distinguished themselves by running at the lowest expense, will completely effect the desired object, and keep the working expenses at the lowest point compatible with general safety.

Report of A. B. Gray, upon the Atlantic and Pacific Railway.

(Continued from page 608.)

Preparing the road-bed from Mustang Springs to Pecos river over the Staked Plain, will be very light; but from the river Pecos to the Rio Grande considerable allowance has been made from the fact of the comparatively heavy grades, extra cutting, and filling, and the great cost of wagon transportation for necessities required in the advance graduation of the road; all of which will enter largely into the contractors' estimates. It may be more expedient to use cross-ties of timber found near Fort Chadbourne, or to the east of it, and hence additional allowance for cost of transportation on the road, as the same progresses. They may be had of sufficient durability, however, at more convenient points, such as near the Guadalupe mountains and the short distance to be hauled may prove more economical.

The estimate for iron is based upon the supposition that it can only be deposited at the eastern end, by water from New Orleans.

Approximate estimate for construction and equipping a Railway from the Mississippi waters to the Rio Grande.

FIRST DIVISION PACIFIC RAILROAD.

From the eastern boundary of the State of Texas to El Paso on the Rio Grand del Norte—783 miles.

COST OF CONSTRUCTION.

To Fort Chadbourne, 407 miles from eastern borders near Shreveport.	
200 miles grading, \$5,000 p. mile.....	\$1,000,000
207 " " \$4,500 p. m.....	931,500
Ballasting, grubbing, and clearing, \$700 p. m.....	284,900
Cross-ties or sills, (2,600 per mile,) \$1,500	610,500
Laying and distributing iron and ties, \$750 p.m.....	305,250
Bridging streams, (Sabine, Neches, Brazos, Trinity, and forks of the Colorado of Texas.....	150,000
	\$3,282,150

To Mustang Springs, 100 miles west from Fort Chadbourne.
Grading 100 miles, \$4,000 per mile.....\$400,000
Ballasting, &c., \$500 per mile.....50,000
Cross ties, \$1,600 p.m.....160,000
Laying and distributing iron and ties, \$750 p.m.....75,000
Bridging Oak Creek and Br. of Colorado.....10,000

695,000

To the Pecos river 115 miles west from Mustang Springs, (across Llano Estacado).
Grading 115 miles, \$2,500 per mile.....\$287,500
Ballasting 115 miles, \$500 per mile.....57,500
Laying iron ties, &c., \$800 per mile.....92,000
Cross ties, \$1,800 per mile.....207,000

644,000

To El Paso, 161 miles westward from Rio Pecos.
Grading 60 miles to Guadalupe Pass, \$8,500 per mile.....\$510,000
Grading 100 miles to the Rio Grande, \$8,500 per mile.....858,500
Ballasting 101 miles, &c., \$500 per mile.....50,500
Extra graduation and masonry, possibly short Viaduct at the foot of Guadalupe Peak.....100,000
Cross-ties 161 miles, \$2,000 per mile.....322,000
Laying and distributing iron and ties, \$1,000 per mile.....161,000
Bridging the Pecos river.....6,000

2,215,000

Cost of iron (delivered at starting point of road water navigation) for 783 miles of 65 lb. Rail (114 and 4-10 tons per mile,) \$80 per ton.....\$7,166,016
Wrought iron chairs and spikes at \$400 per mile.....313,200

7,479,216

Total graduation and masonry, bridging and superstructure, of Line through Texas to El Paso.....\$14,108,366

EQUIPMENT.

First class engines 100, \$10,000.....\$1,000,000
Freight and baggage cars, 1,500, \$750.....1,125,000
Passenger cars, 150, \$2,500.....375,000
Passenger and freight depots.....500,000
Passenger and freight stations, buildings, and machine shops, machinery and fixtures, engine and car houses.....550,000
Engineering and contingencies.....2,000,000

3,550,000

Total cost of first class road fully equipped for 784 miles through the State of Texas.....\$19,658,366
Average cost per mile, \$25,107.

The following table which I have compiled from authentic sources, will show that none of the northern or north-eastern roads can be taken at a comparison to arrive at an estimate of the cost of this.

There is a wide difference in the expense of railroads in various sections of the country.—Those of the six New England States range from an average of \$30,978 to \$52,289 per mile, and a general mean of over \$40,000 a mile. Those of New York, New Jersey, and Pennsylvania, from \$31,670 to \$43,505 per mile, with a general mean

of \$39,435; while Indiana, Illinois, Ohio, Mississippi, and Tennessee, average only \$18,991 to \$22,622, with a general mean of \$20,692 per mile. Virginia, North and South Carolina, Georgia, and Alabama, average from \$17,971 per mile to \$19,722 with a general mean of \$18,663 per mile.—This great difference is owing to the various and natural causes acting in favor of the southern roads. The great expense of the northern railroads does not arise from the original cost, nor would it be a fair guide to their cost if constructed at the present time, for many alterations and improvements have taken place in them, creating additional expense, together with other causes helping to swell the amount.

Land damages also constitute a very large item upon the northern roads, as for instance, in the State of New York, where it averages \$4,000 a mile, and which would not enter into the expense of a road through Texas, the right of way being donated by the State for 200 feet wide—and where if the road were obliged to run through ground previously located, owners will be glad to donate roadway, for the sake of having it convenient to their lands.

The Richmond and Danville railroad, one of the most substantial first class roads in the country, which has been just completed, cost \$23,000 a mile, fully equipped with a heavy rail, and there was much cutting and masonry upon it. Therefore, allowing for every contingency, I cannot be considered to have estimated too low. Illinois Central railroad cost \$20,500 per mile, and would be a much better criterion to go by than any other road that I know of, from the general similarity in the country to that of the State of Texas.

Average Cost per mile of Railroads in Different States.

State of	Av. cost p. m'l.	Mean cost.
Maine.....	\$33,608	89
New Hampshire.....	30,978	30
Vermont.....	43,167	80
Massachusetts.....	45,760	07
Connecticut.....	39,536	08
Rhode Island, (only 50 miles in operation)....	52,289	60
New York.....	43,505	43
Pennsylvania.....	43,140	42
New Jersey.....	31,670	50
Indiana.....	20,822	60
Illinois.....	20,839	77
Ohio.....	22,622	02
Mississippi.....	18,991	60
Tennessee.....	20,186	80
Virginia.....	19,722	07
North Carolina.....	17,971	69
South Carolina.....	19,432	21
Georgia.....	18,155	70
Alabama.....	18,037	10

There would be no interruption by seasons of snow or cold, no malignant diseases or tropical suns to interrupt the prosecution of the out door work, winter or summer; neither would there be any tunneling, extensive bridging, or heavy cutting and embankment to prevent a continual laying of superstructure.

Therefore, assuming sufficient roadway to be in readiness, with cars to transport the cross-ties and rails to depots; the light hand cars that can be lifted off and on the work for distributing the same, it would not be extravagant to state that a mile a day of the superstructure can be laid; making less than three years to the Rio Grande. Allowing 18 months for preliminary surveys, location of road, and advance graduation necessary for commencement of superstructure, and less than 5 years will be required to connect the Eastern and Western limits of Texas by a railway (783 miles long,) reaching halfway to the Pacific coast, from cities of Arkansas and Louisiana, and the navigable waters of the Mississippi, where roads from the North and East will long before that period be constructed to.

Adjacent to the proposed points of intersection of the Rio Grande, are numerous towns and settlements, San Eleazario, Isetta, Socorro, McGoffinsville, Franklin, Molino del Norte, (Hart's Mills),

Frontera, Fort Fillmore, Las Cruces, and Donna Anna, on the east side of the river; and the town of El Paso, and the villages of the Mesilla, etc., on the west bank of the Rio Grande. There are also the products of the mines of the Organ mountains, distant 45 miles as well as those of the Janos and Corrolitas; the transportation of troops, supplies and mails to New Mexico; the trade of Chihuahua and Sonora, besides the great mails to California and Oregon, and overland emigration from the Valley of the Mississippi, that would necessarily (by the saving of time and expense) be transported on this road, if simply to terminate at El Paso;—for it would be less than 800 miles to the Pacific coast. These with the local travel and traffic (transportation of cotton, wheat, etc., which at present amount to a great deal, and increasing a short time an hundred fold in the northern part of the State,) would render it not only self-sustaining, but producing as profitable returns as any other road in the United States, free as it must be from all competition for a long period to come.

By way of Baltimore and Washington from New York, and over the Alexandria extension, and East Tennessee and Virginia Railroads, intersecting the Charleston and Memphis route at the Tennessee and Georgia boundary, there will be nearly an air line southwest; thence to Memphis it is nearly west. There are about 700 miles of this route nearly completed, and the balance, 362 miles, in rapid progress of completion; 210 miles of it being the Charleston and Memphis road, and, that fully expected to be in running order by the 1st of Jan., 1856.

From Memphis via Little Rock, to Fulton in Arkansas, not far from the beginning of the Texas road is 270 miles, which are already surveyed for a railway and provided for. These will connect with the road through Texas, undoubtedly before that line is completed. It is only necessary to glance at a recently compiled railroad map to observe the situation of these routes, and be convinced of this fact.

Then by constructing the road through Texas to the Rio Grande, we shall have a continuous almost direct line from New York to the river crossing at El Paso—of 2,153 miles, and which, at an average locomotive speed of 20 miles an hour, (express train,) would take four days and 11½ hours.

From the Rio Grande (El Paso) to Junction of the Gila and Colorado rivers, it will be 550 miles, and through the Gadsden purchase will enable us to overcome easily in 5½ days (allow six) by a fine coach road that can, with very little expense, (\$100,000 at most) be made over firm ground nearly level, with all the necessary water stations bridging &c.

Thence to the Harbor of San Diego (or to San Pedro,) 210 miles by way of the road (only 150 miles in a straight line,) two days will be required, allow three days.

By steamers then to San Francisco in 36 hours, allow two days.

	Da's	Hrs
New York to Memphis, 1067 miles, at 20 per hour*.....	2	5½
Memphis via Arkansas, and Texas to El Paso on the Rio Grande, 1086 miles, at 20 miles per hour.....	2	6
El Paso to junction of Gila and Colorado by Post Coaches 550 miles.....	6	..
Thence to San Diego (or San Pedro) by Post Coaches 210 miles.....	3	..
San Diego to San Francisco by steamer 550 miles.....	2	..
Total time from New York to San Francisco.....	15	11½

Thus by Railway through Texas, and thence by coaches to San Diego, shortening the time of pre-

*Equal to 30 miles per hour at 16 hours per day, leaving 8 hours for rest, stoppages, &c., or about 25 miles per hour and 4 hours in every 24 for stoppages, &c.

sent transit (the Ocean route) from five to eight days, saving a distance of several thousand miles' travel, avoiding the fevers of the Isthmus, and without traversing foreign soil.

At any time by an increase of speed, for which I have allowed ample latitude, we can with equal certainty and safety (with this road alone built) reach San Francisco in 12 days from New York, or in 10 days from Memphis, and the centre of the great valley of the Mississippi.

The mails then from the Northern States, the Eastern, Western and Southern States, will alike be accommodated to California and to Oregon; and passing entirely through our own Territory, arrive at their destination 8 days earlier than by the present foreign and circuitous routes, if the Texas connection with the Rio Grande is made.

Having a thorough knowledge of the country and several years' experience of every mile to be travelled from El Paso to the Pacific, I know this can be done. Illinois, Ohio, Indiana, Missouri and the West will not be obliged to send their mails a thousand miles to the East before they can have them start for the Pacific; but by their Railroad connections, will be able to concentrate at once on the main stem in Texas.

It likewise would enable the Government, at comparatively little additional expense to send off dispatches, and command conveyances to our Western possessions at any time, tri-weekly or daily.

I have not presumed that the great bulk of passengers and freight from the Atlantic coast, now carried by the steamers over the Isthmus, will be drawn away by this route, until the Railroad is extended 550 miles further to the junction of the Gila and Colorado, and where steamboat navigation can be had; or, until the whole line of Railroad to the Pacific coast is completed.

As regards obstructions by Indians, I do not apprehend the least difficulty. Few hostile bands reside immediately along the parallel of 32° N. latitude. If any, they are not permanent, but have their established homes to the north or to the south of it, and only occasionally cross it to commit depredations.

The number of men that will be required for the construction of the road, and the settlements and towns that will precede and follow its completion, together with the necessary military posts afforded by the Government, for the protection of its citizens, will overawe these savages, and force them to abandon their predatory habits.

The incursions below this line against our distant settlers, and the unprotected neighboring Mexicans, are made by comparatively few Indians.

I am confident from personal experience and knowledge of the various tribes I have allusion to, the 500 of our troops appropriately armed, equipped, and rationed with a system suitably regulated to this peculiar service, and full discretion allowed to the commanders, might establish perfect safety and peace from the Sabine to the Pacific. With ten or twenty-five persons I surveyed the entire route across the continent, without the loss of an animal or man by Indians, and the country most frequented by them. The State of Texas having granted sixteen sections (640 acres each) to every mile of road constructed, and the lands along the line for the first four hundred and fifty miles, valued at least at seven dollars and fifty cents per acre, (\$7 50,) including town sites, stations, &c., the very large amount of thirty-four millions five hundred and sixty thousand dollars will thus be realized, for little over half the length of the road. Then for 333 miles, (balance of the route to El Paso,) being not so well timbered and watered, adjacent to the road it might very safely be set down at three dollars per acre; equal to ten millions two hundred and twenty-nine thousand dollars; amounting to at least forty-four millions seven hundred and eighty-nine thousand seven hundred and sixty dollars (\$44,789,760,) worth of land, given as a bonus for the construction of a Railway, which I have shown will cost less than twenty millions of dollars! Such a munificent

donation must undoubtedly secure the building of this road.

In proceeding to show the entire feasibility and practical advantages of constructing a Railway west from the Rio Grande, I will demonstrate that the entire route from the navigable waters of the Mississippi to the Pacific coast, at San Pedro or San Diego, will not exceed for its entire construction the amount estimated as the value of the eight millions three hundred and fifty-six thousand eight hundred and forty acres of land granted by Texas.

There are immense tracts of beautiful country, with inexhaustible beds of gypsum and valuable coal fields embraced within the belts (140 miles wide by 450 miles long,) reserved by Texas for railroad purposes, and which emigration and speculators have not yet reached, and where every acre donated to the company can be selected and made available. In the belt reserved for similar purposes between the parallels of 30° 30' and 32° (west of the first reservation,) there are no settlements and locations at present made in the rich valley of the Pecos, or the valleys nearer the mountains.

When it is considered that the lands granted by the Government, six sections to the mile, which constructed the Illinois Central Railroad, sold at an average of more than ten dollars an acre, I am certain that the estimate placed on the Texas lands under the superior privilege by which they can be selected, is much too low; but as in the case with the estimates I make for building the road through the State, (placed at an extreme cost,) so I prefer to err on the side that will prove to the advantage of those who may be most affected by it.

On arriving at the Rio Grande, it became necessary to remain a short while and recruit our animals, which were somewhat flagged by the fatigue of the journey. I learned at El Paso, that an order had been issued by the Government of Mexico, to the commandants of the frontier posts of Sonora, and Chihuahua, to respect all parties sent out under the auspices of the Government, connected with the Pacific Railroad Surveys, during the treaty then pending with the United States; and that Gen. Garland, commanding the Department of New Mexico, was authorized and requested to have an exploration made with that view.—It may be well here to note, that the permission from Mexico to pass through Mexican Territory, for such purpose had not been granted when I left Washington in October, and my only resource now was to consult Gen. Garland.

Soon as it was possible for me to obtain a conveyance, which was on the 19th of February, I set out for Albuquerque, head quarters of the Department of New Mexico; and following the Rio Grande some 250 miles, visited the proposed crossing of that river at Frontera, at the town of Mesilla, at Donna Anna, and also Isletta, thirteen miles below Albuquerque. At the latter named place, I had an interview with Gen. Garland, who upon examination of his powers, and after due consideration gave me authority to make the reconnaissance and exploration desired to the Pacific.

While awaiting return conveyance at El Paso, for the purpose of continuing the survey, I availed myself of Gen. Garland's hospitality; and, in addition, he afforded me an opportunity of visiting the Placer Mountains, and the Canon, through which it was proposed to carry a Railroad to the Pacific, by way of Fort Smith, in Arkansas, and Albuquerque, New Mexico.

The fourth day after reaching Albuquerque, I was enabled to start back to my encampment at El Paso, where I arrived 12th of March, and found my party in excellent health and our animals in fine condition.

From Robladero, ten miles above Donna Anna, in latitude 32° 27' N. to San Eleazar in latitude 31° 35', I examined the river for the best railway crossing, and made a survey of the Falls at Molino del Norte or Hart's Mills, two miles above the town of El Paso; which point, I concluded had

greater facilities for bridging, than any other on the Rio Grande.

Previous to my starting up the country, I had the pleasure of meeting at the Molino, Capt. Jno. Pope, of the Topographical Engineers, who was preparing to make a survey from El Paso to Preston, on Red River, for railroad purposes. We had examined the river at the mills together, and observed that the nature of the ground and stone requisite for foundation and piers, afforded every facility for the construction of a substantial bridge. Captain Pope's course was to follow the Guadalupe Pass, and the Delaware Creek to its mouth, thence across the Staked Plain to the head springs of the Colorado. This line from the Rio Pecos would be about 16 miles above the crossing I propose for that river, and 20 miles north of the Mustang Springs.*

*Since the above, I have seen the report of Capt. Pope, and quote the following views of that accomplished officer, of the country, over which he passed, from the Rio Grande to Red River.

"Water is found at intervals not to exceed 28 miles, between the Rio Grande and the Guadalupe mountains, and from the western base of the mountains to the Pecos abundant springs of water, both fresh and mineral, occur at much shorter intervals.

"Timber of large size is only found immediately contiguous to the 32d parallel on the east side of the Guadalupe range, where abundance of pine of the largest size faces their eastern slope; but fuel of the best quality, and which is alone used on the lower Rio Grande, is furnished by the roots of the mesquit.

"The table lands are covered with the mesquit brush, whose roots are numerous beyond conception, and are of a size varying from one inch to five inches in diameter. As a fuel they are uncommonly fine, and are alone used in the settlements from Donna Anna to San Eleazar. As many persons, from ignorance of this fact, have suffered for wood in the midst of this abundance, it is proper to state here that all the table lands of New Mexico furnish this fuel, and that it can be procured with very little trouble in any part of the country.

"The gramma grass, which exists in the most profuse abundance over the entire surface of these table lands, is nutritious during the whole year, and the plains between the Rio Grande and the Pecos seem intended by nature for the maintenance of countless herds of cattle. Although little protection from Indian depredations has been afforded, and incalculable quantities of stock have been driven off by them, the number appears to be undiminished; and as the original cost is small and the expense of feeding nothing, cattle and horses are the most abundant possessions of the people of New Mexico.

"A good wagon road, with water at convenient intervals, and offering facilities for travel available at any season of the year, leads from the valley of the Rio Grande at El Paso to the Pecos, near the 32d parallel.

"The valley of the Pecos at this parallel of latitude is a level plain of fertile soil, about 2 miles in width, destitute of timber, and bordered on each side by table lands about fifty feet high, which descend into it by very gentle inclinations. The river itself is about forty yards wide, and, with a general direction to the southeast, it traverses its valley from side to side in a very tortuous course. Its bed is a compact limestone, over which it descends with a depth of about two feet, through numberless rapids, and at one point near the mouth of Delaware creek, over a fall of two and a half feet. The valley is very fertile and susceptible of a high state of cultivation, the uniformity of its surface and the peculiar character of the stream affording unlimited facilities for irrigation.

"A short distance below the 32d parallel the valley widens to several miles in extent; the rocky bed of the river disappears, and is replaced by falling banks ten feet in height, and by a soft

Having shown the advantages of the Texas Railway connection with El Paso; and that it would be a profitable investment, independent of the undertaking to the Pacific from the R. Grande, I will now endeavor to prove, it is not only feasible, but eminently advisable to continue this Railroad to California; and that if the first division will pay, how much more the completion of the entire line will add to the profits of the road through Texas.

muddy bottom. The few fording places below the mouth of Delaware creek are very unfavorable at the best season of the year, and during high water are absolutely impracticable. From the accounts of those who have crossed the river by the route from San Antonio to El Paso, and from my own examination of it for one hundred miles below the 32d parallel, it is quite certain that no point below affords anything like the facilities for fording as does the crossing at the mouth of Delaware creek.

"The Llano Estacado along the line of the 32d parallel (as indeed everywhere else) is destitute of wood and water, except at particular points during the rainy season; but a close examination of its geological features—the detailed results of which will be found in their appropriate place—exhibits the practicability of boring artesian wells at as many points on its surface as would be desirable. The peculiarly favorable character of the ground along the route of the 32d parallel, the directness of this route over it, and the difficulties to the north and south would seem to present inducements eminently favorable to the construction of these wells. For thirty miles east of the Pecos, the surface of the plain is hard, and covered with grama grass; and from thence to a point about thirty miles west of the head of the Colorado, the hard surface alternates with patches of dark red sand, covered with a coarse bunch-grass, about two and a half feet high. Although the sand packs readily into a hard surface, the passage over it for the first time with loaded wagons, and embarrassed by the bunches of high grass, was laborious in the extreme.

"The Llano Estacado presents no inducements to cultivation under any circumstances; but with a supply of water at reasonable intervals, it would offer, though in a less degree than the table lands to the west, facilities for the raising of stock.

"Of the country between the Llano Estacado and the Valley of the Red River.—The space between the eastern base of the Staked Plain and the Red river, at the parallel of 34 degrees, is occupied by that portion of northern Texas drained by the tributaries of the Colorado, the Brazos, the Trinity and the Red rivers. With rapidly increasing advantages as you proceed eastward from the Llano Estacado, this region is well timbered, well watered, and possessed of a soil of extreme fertility, capable of sustaining a dense population.—The entire country is so gently undulating in its surface, and presents such an abundant and well-distributed supply of wood and water, that it can be traversed in any direction with trains of wagons, and is of so genial a climate that little choice of the seasons is considered desirable in undertaking an expedition through it. A great portion of the timber of the region intersected by the Colorado and its tributaries along this route is the mesquit, which about thirty feet in height and from six to ten inches in diameter, divides about equally with the prairie lands this entire district of country.—The Brazos and its tributaries are better supplied with oak timber of a larger size; the country is more undulating, and the water more abundant. Immense coal beds, of good quality, crop out along the valley of the river, and every natural advantage of soil and climate is offered to the emigrant. A military post (Fort Belknap) has been established upon this stream, near the 33d parallel. But by far the richest and most beautiful district of country I have ever seen, in Texas or elsewhere, is that watered by the Trinity and its tributaries. Occupying east and west a belt of one hundred miles in width, with about equal quanti-

SECOND DIVISION.

FROM THE RIO GRANDE TO THE NAVIGABLE WATERS OF THE PACIFIC, AT THE JUNCTION OF THE GILA AND COLORADO RIVERS.

Frontera near El Paso in lat. 31° 48', to the Valle de Sauz, in lat. 32°; 150 miles westward.

To cross the Rio Grande at Hart's Mill (known as Molino del Norte) would require a bridge about 400 feet long; with embankments thrown out from the bluffs or hills, for a distance of 100 feet at each end. Should the road be located on the northernmost line from the Pecos, which I have described as the Guadalupe Peak route, it will curve round the southern point of the mountains about five miles off, and by a side cutting gradually descend from the Mesa along a ravine to the bluffs near the mill, at any desired height. The Mesa or table bordering the valley of the Rio Grande, is 373 feet higher than the river; and along wide ravines which are conveniently located on each side, the distance to overcome this by a railroad would be about six miles; making descending gradients for the approaches to the crossing of 62 feet per mile. This would be modified, however, by elevating the bridge, which can be done with little additional expense, the side cutting of the hills being through a conglomerate of sand and gravel. Stone, convenient for the piers, is close by. The river bottom is rocky and firm, and better suited for bridging than any point I have examined on the Rio Grande. The current is not strong, $1\frac{1}{2}$ to 2 miles the hour, and no fear of damage from freshets, drift wood or ice.

The opposite side, however, is Mexican territory, being the head of the Acequia, or irrigating canal of the town of El Paso, and two miles below the boundary. This may cause the road to follow the river some six miles to Frontera; the last three miles being through a rough canon, or over ridges and deep gullies, requiring considerable cutting, with heavy excavation and embankment.

Frontera, three or four miles above the limits of Mexico, is also a favorable point for bridging, and upon our own territory; but the ascent from the valley to the table land is more abrupt. By extending the route along the bluffs, however, to reach the level of the plain, convenient grades may be had. Stone for all masonry necessary may be quarried on the spot, but timber must be brought from the mountains forty miles distant. This can be hauled fifteen miles to the river and floated down. Cotton wood, the chief growth on the Rio Grande, although of a different character from that of Red river and the east, and durable enough for temporary use in this climate, is not found of sufficient size in the neighborhood for bridge purposes, but will answer very well for cross-ties, and will no doubt be used for such if only temporarily. I am of the opinion, however,

ties of prairie and timber, intersected by numerous clear, fresh streams and countless springs, with a gently undulating surface of prairie and oak openings; it presents the most charming views, as of a country in the highest state of cultivation, and you are startled at the summit of each swell of the prairie with a prospect of groves, parks, and forests, with intervening plains of luxuriant grass, over which the eye in vain wanders in search of the white village or the stately house, which seem alone wanting to the scene.

"The delusion was so perfect, and the recurrence of these charming views so constant, that every swell of the ground elicited from the party renewed expressions of surprise and admiration.

"It may seem strange that a region suggestive of such florid description should still remain so nearly uninhabited; but it must be remembered that this part of Texas is yet but partially explored, that it is far from the markets, and that it is still invested by bands of hostile Indians. A full knowledge of its startling beauty, and of its amazing fertility, and the construction of facilities of communication with a market, will soon convert this charming region into a reality, of which nature has exhibited so beautiful a presentment."

that bridges of iron will be found most expedient. They may be made in sections and transported on the road, when built to this point, and very little detention need occur in setting them up, if the foundation and abutments are prepared in advance.

The route which I propose from the Rio Grande, for a railway, in about 85 miles west, is crossed by the old-copper mine road, leading from Santa Rita del Cobre, near the head of the river Gila, to Janos and Corralitas, towns in Chihuahua, 60 miles south. At the point of intersection is a spring called Ojo Carrasalia, (Carrisal? land of reed grass.) Forty-five miles further, the route crosses La Playa [the beach] or Dry Lake, at copious springs, upon Cook's Road from Santa Fe to San Diego through the Guadalupe Canon; thence in five miles the summit of the divide between the waters of the Atlantic and Pacific Oceans is reached; the Rio Grande on one side, flowing into the Gulf of Mexico—and the Rio Santa Domingo, or Rio Sauce, [called by various names,] a tributary of the Gila, on the west side.

Six miles, over a gentle slope from the summit, on the same course, this line enters a deep gorge in the range extending from the Guadalupe Canon to the Black Mountains of the Gila, and turning northwest, continues nine miles by a more rapid descent along the western slope to the "Valle de Sauz," [Valley of Willows.] This valley has numerous springs of good water, and extends entirely to the Gila, a distance of 60 miles north-west, ranging in width from eight to ten miles.

The small stream that takes its rise in the Cienaga del Sauz, [willow swamps] where we encamped, ramifies in small veins for some miles, until it forms into a regular channel, and although not generally a running stream, has plenty of water for all purposes necessary to make it a fine grazing region. I have traced this arroyo for a great distance, and in 1851 encamped upon it, near the Gila, when proceeding to survey a portion of the United States and Mexican boundary.

The ground along this section alternates from a sandy soil to occasional loam or clay and is almost the whole way covered with grass, in many places the rich grama, and in others a coarser or less nutritious kind. There is no permanent drinking water found at the surface immediately adjacent to the line, except the different springs mentioned, where there is abundance, and every appearance of its being had by wells at other points.

Lakes of alkaline water, which would answer for locomotive use were found.

Fifty-five miles from the Rio Grande, and fifteen miles south of this route, is found a small but bold stream of pure water, that takes its rise south of Janos, in Chihuahua, runs north to the latitude of 31° 35', where it turns suddenly to the east, thence south 18 miles, when it sinks into the ground a mile from Lake Guzman. It has a large and beautiful valley; ten miles at its north bend, with excellent soil, and the largest size alamos or cotton woods growing on its borders. It will, no doubt, become a valuable and desirable grazing district.

At the northwest edge of Lake Guzman, is a delightful warm spring, the water, when cooled, very excellent to the taste. A few steps below where it gushes from the ground, is a wide basin about five feet deep, sufficient for twenty persons at a time to bathe in. It is constantly flowing, and of just the right temperature. Our party enjoyed themselves much during the few days I was detained there, determining its position and exploring the lake and mountains on either side.

There is no timber after leaving the Rio Grande, nearer this line than the Sierra Florida and Burro mountains, 30 or 40 miles north, and on the Rio Guzman, (or Rio San Miguel, as it is called at Janos), until we reach La Playa Springs; where, 10 miles south in the Sierra de los Animas, are found plenty of oak and pine. The Chiricahua range, which on the west, faces the "Valle de Sauz," 10 miles from the terminus of this section, is covered with a similar growth. It may prove more profit-

able, however, to use the timber of the Rio Grande, than haul any distance by wagons. The cotton wood will, unquestionably, last two years in this climate after being laid.

From the edge of the Mesa, at the Rio Grande, there is only a rise of 815 feet in 128 miles, making an average grade of $2\frac{1}{2}$ feet to the mile. Several intermediate undulations and one or two low ridges, separating depressions in the plain occur, all of which are very gradual. The ascent from the Dry Lake is 268 8-10 feet in five miles, making 53 7-10 feet to the mile, and the maximum gradient necessary on this section. From the summit for five miles west, there is a gradual fall of 11 2-10 feet per mile, when, through the gorge and to the Willow Springs in the Valle de Sauz, a distance of 17 miles, there is a descent of 589 7-10 feet, making a gradient of 34 7-10 feet to the mile.

The excavation and embankment will be light, until the approach to La Puerta, leading into the Valle de Sauz, where are black lava and granite rocks scattered about in much confusion, though they offer no obstruction even to the easy transit of wagons. It is by far the best pass in this range that I know of, and having crossed it further north two years previous to my present exploration, I am satisfied, offers great facilities; besides being nearly in a right line west from Frontera, cuts off some forty odd miles from the other route by the town of Mesilla or Donna Anna, south of the Gila to California. La Puerta is hidden from sight, until reaching the divide, when it suddenly opens to view.

Had that indefatigable officer, Col. Cooke, in his famous march across the continent for the first time with wheel vehicles, known of this pass, he would have been saved the Herculean labor of forcing his way through the impracticable Guadalupe Canon. Our encampment was three miles off for the night, and as we trailed through it at early sunrise next morning, one of the arrieros exclaimed, "La Grande Puerta," and from its being the first entrance upon the Pacific waters, I named it La Puerta—the door. None of the party, but myself, had previously been in this section of country, and there were no traces of any one having passed through it, until now. The altitude of the summit of the divide is 4,714 feet, and the highest point of La Puerta is 4,657 9-10 feet.

We are now over the great table; and from the highest shelf of the Rocky Mountains in this latitude, have descended one step of the Pacific slope. Between the meridians $104^{\circ} 50'$, and 109° west longitude from Greenwich, lies this elevated Mesa. The eastern borders resting on the Pecos are the Guadalupe and Sacramento mountains, one hundred miles from the Rio Grande; and western limit, the range (running north from Cooke's Guadalupe Canon,) in which is the Pass of La Puerta.

In this distance of nearly 250 miles, there are no elevations to overcome above those of the two extreme borders; 4,896 feet (summit of Guadalupe Pass), and 4,714 feet (summit five miles west of the Ojo del Playa, or Dry Lake of Col. Cooke.) It will be remembered that the highest altitude of the great plateau on this route, is east of the Rio Bravo del Norte, and in Texas; and this is the greatest elevation above the sea [4,869 feet], that need be ascended to reach the Pacific Coast, if the line to the Rio San Pedro, by way of the Dome Mountain Pass, through the Chiricahua Range, [hereafter described], is determined upon as the most expedient; and thence by Cooke's Road, via Tucson to the Gila.

From the Valle de Sauz to the Santa Cruz Valley, —miles.

The lofty granite range of the Chiricahua mountains—through some pass of which the road must follow—forms the entire Western boundary to the Valley of Willows, (Valle de Sauz). It extends in a north-western direction to the parallel of $32^{\circ} 27'$ where a deep indentation occurs of several miles wide; when, rising suddenly again, it reaches its greatest eminence, Mount Graham, whose apex is intersected by the meridian of $109^{\circ} 47'$ West Longitude; and thence continues on the same

course to the great canon of the Gila, where it becomes blended with the Pine Plain mountains (Pinal Llano) of the Apaches. It is the most extensive and well defined range between the Rio Grande and junction of the Colorado and Gila rivers.

I will here remark, that on the eve of my departure from the Rio Grande, I received a note by express from Major Backus, commanding Fort Fillmore some 45 miles above El Paso, informing me of the arrival of Lieut. Parke from California, on the survey of a route for the Pacific railroad. Through this very thoughtful and kind act of Major Backus, I was enabled to see Lieut. Parke, and learn from him the direction of his explorations. He had completed his field work, and very generously turned over to me an excellent cistern barometer, one of two which he had brought with him for the determination of altitudes. This was a valuable accession to my other instruments. It had got a little out of order, from the bottom of the glass tube not having been cut the proper length, being rather long; but through the ingenuity of Capt. George Stoneman, commanding Lieut. Parke's escort, it was repaired, and afterward worked well, giving good results, having tested it with accurately determined points.

Lieut. Parke's route from the Valle de Sauz to El Paso, was partly the road made by us (the Boundary Commission) in 1851, far to the North of the line now explored by me, and some 40 miles longer. From the San Pedro river, his line was the same travelled by us that year. I had, therefore, in addition to my own, the benefit of his examinations of the Pass del Dado, and having also traversed the Chiricahua mountains through the defile in Mt. Graham, in Latitude $32^{\circ} 27'$, and satisfied that no other practicable pass for a railway existed, northward, I determined to seek a passage in the opposite direction, which might prove more favorable.

The camp was moved across the valley to the mouth of a bold and rugged canon, ten miles from the Willow Springs, and facing La Puerta. Abundance of pure water was found by us, and a couple of men whom I sent to explore, returned with the information that a mile above, was a mountain stream fringed with large pines, and the ground carpeted, as it was all around us, with luxuriant grama. This grass, though of the last season's growth, was yet very nutritious, like the best of hay at top, and perfectly green for several inches from the ground.

The view of this canon in the morning, with the reflected sunlight from its deep recesses, and upright walls rising on all sides to a height of several thousand feet, tapering like spires amid the clouds, was majestic and grand. The mouth of the canon is a mile wide, and a line of alamos and willows extending some distance into the plain, marked the course of an arroya filled with large boulders, plainly indicating it in the rainy season to be a bold and rapid torrent.

I noticed in looking across the wide valley to the mountains, on the east side, that it was difficult which way this arroya turned; that there was a slight elevation all the way over, and that it sloped almost imperceptibly to the right and to the left. I subsequently discovered that this gentle divide separated the waters of the Yagui river, upon which the old rancho of San Bernadino is situated, from those of the Cienaga del Sauz, or Willow Swamps of the Valle de Sauz. The Yagui river empties into the Gulf of California, near the Port of Guaymas, in Sonora.

From the grand canon we followed along the base of the mountains, examining minutely every break that appeared the least encouraging. Finally a large opening was discovered, with an arroya whose banks afforded an excellent road, and ascending gradually, we came to a spring having Cotton-woods and a few Sycamores about it. From this point, through a broad and beautiful defile, with a very gentle ascent, we rose to the summit of a fine pass, through which any ordinary coach could be driven without the least difficulty, or necessity for locking the wheels. This pass

led us by an equally gradual descent into the wide valley and plain of the "Playa de los Pimas." Near the summit is a huge red granite rock of gigantic dimensions and singular beauty. Our arrieros called it "Cerrillo Colorado," the Little Red Mountain. Its lower peak is of conical form for 400 feet from whence it rises with nearly perpendicular sides 300 feet higher, and crowned with a massive dome of symmetrical proportions. Standing isolated and alone, it becomes a prominent landmark, easily recognized from the hills East of the old Rancho of San Bernadino; from which it bears N. 53° W. [Magnetic,] and distant about 20 miles. Opposite and south of the spring are high vertical cliffs of porphyry, resembling pallisades. This Pass, which we called the Pass of the Dome, has a summit elevation of 4,826 feet; less by 402 feet than the altitude of Paso del Dado, determined by Lieut. Parke, with the same instrument. It is the lowest of the three Passes through this formidable chain of mountains, along the base of which I have now skirted from the extreme North to its Southern terminus. Below the Paso del Dado, it is covered with timber of forest oak and pine, and in the gorges and ravines are sycamore, walnut and cedar.

The arroya which we followed to reach the Dome Mountain Pass, is a tributary of the Rio San Bernadino. To the spring where we made our noon halt it is 40 miles S. W. of La Puerta.—The Chiricahui Mountains are granite, almost entirely, with much feldspar, as in the case of the Grand Canon; which from disintegration has caused its curious serrated appearance. Towards the lower or southern end, there are trap dykes and basalt in irregular and confused directions, showing a powerful volcanic action at some long period back.

Indian signs were plenty and recent; large numbers had lately camped at the springs of the canon, and trails were numerous in every direction. I recognized at once the familiar print of the square-toed mocassin boot of the Apache. Our number was small, but very compact, thirteen all told. I had divided the party for the purpose of running two lines, when we struck Cook's road.—We were to join again at the valley of Santa Cruz. The others numbered the same, well armed and mounted.

Crossing the valley of Playa de los Pimas on a West course we rose to a summit of a break in the low range bordering the San Pedro, 27 miles from the summit of the preceding pass, and almost a right line west. From thence by a broad Indian trail, we descended a valley covered with rich grass, to the Rio San Pedro, $11\frac{1}{2}$ miles. The elevation of the San Pedro pass is 4,731 3-10 feet. The valley of the Playa de Los Pimas is here firm soil, with less sand than where we crossed further north. At the lowest depression of the valley are a number of arroyas, two or three feet across, which in the rainy season are filled with water and flow northerly to the Playa of the Pimas, which latter is somewhat similar to the "Dry Lake" of Col. Cooke. There was no water in the valley this month [April,] unless by digging, which we had no means of doing and no necessity for.—There is a scrubby growth of Mezquite and Oak, where we first entered, but no timber for railroad ties. The soil is of a reddish clay, and generally good, with abundance of grass.

The San Pedro river, where we struck it, in latitude $31^{\circ} 34'$, is a small stream at this stage, about eight feet wide, and shallow; between steep banks 10 feet high and 25 to 50 apart. It is good water here, but further down where much alkaline matter is associated with the earth, it is a little brackish and not so pleasant to the taste. At three points that I have crossed it, it is a living stream, with large fish. At its mouth, where it joins the Gila, it spreads into passes, forming a sort of diminutive delta. Occasional bunches of mezquite and cotton-wood are seen upon its borders; and in the neighboring ravines higher up towards the old San Pedro Ranch, are found walnut, and ash. Abundant springs and large districts of grama were frequently met with from half a mile

to a mile off. During an encampment of a month in 1851, at what we called the San Pedro springs some miles below our present ford, our animals, fattened and recruited rapidly.

There were large Haciendas and fine cattle ranches in this neighborhood, until a war of extermination was declared by the Apaches against the Mexicans. Remains of the old San Pedro Ranch, are seen at this day; also the "Tres Alamos;" and the ruins of the Hacienda of Babacomeri, whose walls and towers are still standing. These were among the wealthiest of Sonora in horses, cattle, sheep, etc.; but it has been many years since. It is a fine grazing region with wild cattle and mustangs constantly seen roving over the plains.

The district from San Pedro to Santa Cruz valley, nearly due west from our present crossing [latitude 31° 34'] will be to the Pacific slope what the region of Fort Chadbourn, in Texas, is to the Atlantic. The mountains and hills are covered with splendid timber of the largest size, and for all purposes; and the valleys are full of springs, and the finest grass.

To Tubac, a town in the valley of Santa Cruz, it is 69 miles. This is by following the San Pedro down about a league, passing over a few insignificant spurs, and ascending the Rio Babacomeri; thence continuing westward by a gradual rise over delightful plains to the divide between that and the Sonoita or Clover Creek, and along the latter, until it loses itself in the porous earth, a mile from the Santa Cruz river, and by the broad valley of that stream to Tubac.

This line I explored the last season, also that by the emigrant wagon route from Cook's road into the town of Santa Cruz; which latter route was found impracticable for a railway, beside being partly in Mexico. The other proved perfectly feasible, although the summit elevation between the Babacomeri and Sonoita Creeks, was greater than we had reached in crossing the mountains east of us. It passes through the most desirable region, with the hills and mountains for forty miles containing inexhaustible quantities of timber.—We noticed tall cedar, and oaks of every description; one kind more interesting than the others, being a white oak from twenty to forty feet in the body. Pine and spruce with superior white ash and walnut were found, and the most gigantic cotton-woods, particularly on the Sonoita.

The atmosphere is pure and healthy, and the climate agreeable winter and summer, except in the immediate vicinity of the town of Santa Cruz, where there are swamps hemmed in by high mountains. This town is some distance from the line spoken of, and south of the National Boundary. The mountains in the neighborhood are filled with minerals, and the precious metals are said to abound. The famous Planchas de Plata and Arizonia silver mines, which the Count Rousett de Boulbon attempted to take possession of, are in this section of country, not many miles below the present limits, and at several of the old ranchos and deserted mining villages which we visited, were found the argentiferous galena ore and gold.

The Sierra Santa Rita runs along to the east of the Santa Cruz valley, and forms a part of this interesting section. It is very high and bold, filled with fertile valleys and flowing rivulets, and covered with a dense growth of timber. I saw much of this district, when here in 1841, on the survey of the boundary.

As there are two routes explored from the Sauz valley to the valley of Santa Cruz, one which I have described, leading to the town of Tubac, and the other town of Tucson, I will here remark that the Pass del Dado route is the shortest; but by the Dome mountain pass to the San Pedro river, there will be lower grades, less cutting and lighter work. From thence by the Babacomeri, and Sonoita tributaries, the line would be through far the most interesting country, offering great facilities in timber and cultivated land, though of higher elevation.

Surveys, more in detail, than a mere reconnais-

sance to determine the practicability of the road, may show that it is expedient to pursue the line direct to Tucson through the Del Dado pass, and thence to the Gila, striking it above the Pimas villages. In either case it will not alter the line I recommend from the Rio Grande to the Sauz valley.

With regard to gradients to Tubac, they will average as follows: From La Puerta to lowest depression in the Chiricahua valley, south-west course 26 miles, 27 feet to the mile. To head spring of Dorne mountain pass, 32 miles, 13 feet per mile; thence five miles to summit, 63 feet to the mile; thence to the lowest depression of Playa de los Pimos valley, 27 miles, at eighteen feet per mile. For six miles, grade of 54 feet per mile; to summit of San Pedro mountain pass, 15 miles for four and a half miles; and to the river bank 11½ miles, at 43 feet per mile. From the San Pedro to Babacomeri rancho, 15¼ miles at 25 feet per mile; to Wild Peat spring, 10 miles, at 48 feet per mile; and the summit before reaching the head of the Sonoita, 43 feet per mile for 5½ miles. From summit to Sonoita Springs 4¼ miles at 86 feet per mile; down the Sonoita for 15½ miles, average grade of 61 feet per mile; down same creek for 10¼ miles at 38 feet per mile; and thence by valley of Santa Cruz to Tubac, 12¼ miles at 26 feet per mile.

The pass into the valley of the Playa de los Pimas, will require some blasting in hard rock, but only at short intervals cutting off points of the bluffs; and also some excavation in softer rock west of the San Pedro. Again, at the Sonoita Creek, one or two places will require heavy clearing of matted vines and large cotton woods, also a slight cutting through a short canon. Comparatively there will be required very little clearing or grubbing; and but one stream to bridge, that of San Pedro.

(To be continued.)

American Institute Fair.

Among the many improvements now on exhibition at the Crystal Palace, is a Power's Boring and Mortising Machine, manufactured by Lane & Bodley, of Cincinnati. The improvement is in the application of the power or movement to the chisel, and mandril, so that the operator has the length of stroke entirely under his control, and can stop or start it either gradually or instantly, as he may wish.

This is effected by a contrivance so simple and yet so effective, that it can be operated by a boy, upon the hardest seasoned white oak, with a chisel two or two and a half inches wide, and five or six inches deep. The necessity of boring is obviated in all kinds of carpenter or cabinet work.

It is well worthy the attention of owners of car and railroad repair shops and others, who have mortising or boring to do. The machine is in operation every day and evening.

Philadelphia and Baltimore Central Railroad.

The stockholders of this road, at a recent meeting, awarded to Messrs. Dickey & Co., the contract for furnishing the iron to lay the track, and put the road in running order as soon as graded, and leased the Pennsylvania Division, 36 miles in length, for a term of ten years. This contract insures the speedy completion of the road. There are now twenty-one and a half miles graded of the thirty-six in Pennsylvania.—*Com. List.*

Memphis and Ohio Railroad.

We learn that this road is completed nearly 25 miles from the city, and in less than thirty days will be ironed thirty miles. This is most extraordinary progress, without the least possible noise. Col. Robertson, President of the Road, has given evidence of such energy and go-ahead-activeness as has been seldom witnessed in the management of railroad enterprises.—*Memphis Appeal.*

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THE subscribers are prepared to furnish at short notice, at lowest market rates, for cash or approved credit—Flat, H, and Bridge Rails, American make. Best Rolled Railway Axles. Best Wrought do. do. any pattern. Wrought Iron Chairs, approved patterns. Best Hook Head Spikes, all sizes. Best Quality Bar Iron, used in machine shops. They will also contract to re-roll Old Rails of any pattern that may be wanted.

The highest market value in cash, or in exchange for any of the above articles, will be allowed for

Old Rails or Scrap Iron,
Do. Axles or Tyres,
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Wrought and Cast Iron Turnings,
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Address—HENRY G. NICHOLS & CO.,
Commission Merchants,
79 Water st., NEW YORK

RAILROAD TRACK SCALES.

THE VERGENNES SCALE MANUFACTURING COMPANY of Vergennes, Vermont, desire in this way to call the attention of the public to the fact that they will exhibit at the Fair of the American Institute, which opens at the Crystal Palace on Wednesday, 3rd inst., one of their Mammoth Railroad Track Scales, (Sampson's Patent) the length of which is one hundred and nineteen (119) feet, and though it has a capacity of 100 tons, it will also weigh a single pound with equally unvarying accuracy. They will also have on exhibition a smaller size, (an ordinary six ton Hay Scale) constructed on the same principles. The Company particularly invite the attention of Railroad and Transportation Companies, Civil Engineers, Merchants, Coal Dealers, and all others interested in the improvement of the mechanic arts, to the examination of their scales, which they are confident will show for themselves to possess many important advantages over all others now in use.

N.B.—Patents for the above scale have been secured in England and France, and will be disposed of on reasonable terms on application to W. G. SPRAGUE, Secretary of the Company at Vergennes, Vt., or to D. S. CROSBY, No. 1 Courtlandt st., New York 1m41

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AT PRIVATE SALE.—J. L. H. & Co. always have for sale a choice variety of State, County, City and Railroad Bonds and Stocks; also, Bank and Insurance Works, and other Securities. NEGOTIATE LOANS on Stock, Notes, Bills of Exchange, Mortgages, &c. REAL ESTATE SALES, whenever required, at the STOCK EXCHANGE, or on the premises.

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A GREAT improvement has recently been perfected in the manufacture of Dumping Gravel Cars by which the cost materially lessened and the strength and durability much increased.

We have secured the right to manufacture these improved Cars and can supply them at prices ten per cent. lower than the ordinary kind.

Orders directed to the Hamilton Car Co. Hamilton, Ohio, will receive prompt attention.

LOCOMOTIVE FOR SALE.

FOR sale a Locomotive Engine.
Weight about 25 tons.
Cylinders—15½ x 22.
Driving Wheels—5½ ft. diam.
Boiler—48 in. inside diam.
160 Copper Plates—2 in. inside diam., 11½ ft. long.
Fire Box—50x30 in. inside.
Capacity of Tender—about 1,800 gallons.
Gauge of Machine—4 ft. 8½ in.

The above engine is newly completed and is warranted in every respect, and can be delivered to any point West. For further particulars apply to

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Engines of other dimensions for sale. Apply as above. 4140

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Branch Office in Metropolitan Bank Building, 110 Broadway,
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CAPITAL and accumulation of PREMIUMS to meet losses,
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\$750,000.

After paying a five years' dividend to all insured, (in cash,
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The entire surplus profits are divided among all the members
every five years, thus avoiding the unnecessary and uncertain
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of interest upon the outlay of premiums.

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is deposited with the Comptroller of the State of New York, to
meet the requirements of the law, to secure policy holders in
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This is the oldest American Mutual Life Insurance Company
and one of the most successful.

Insurance may be effected for the benefit of a married wo-
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may insure the lives of debtors.

A blank form for application for insurance, or a copy of the
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THE Virginia Central Railroad Company have several loco-
motive engines which are too light for the service now re-
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for others of a heavier class.

These engines are in good order and in regular daily service,
and are recommended to parties needing locomotives of their
class.

They are for the usual gauge of 4 feet 8½ inches, all eight-
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Weight from 13 to 16 tons.
They are from—MORRIS & BROTHER of Philadelphia, and
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For further particulars apply to the undersigned.

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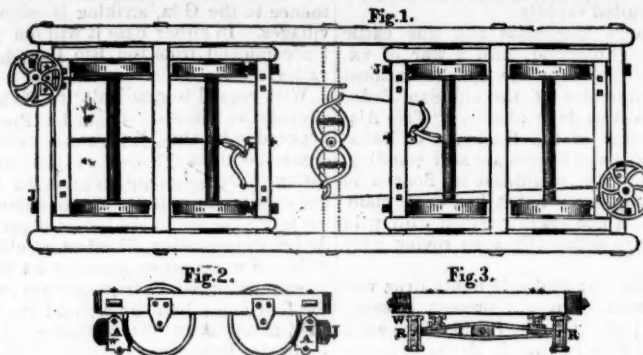
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THIS VALUABLE IMPROVEMENT IN CAR SEATS,
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economy of space, and is unrivaled by any seat now in use.
It can be made to recline at any desired angle at the will of
the occupant, without any of the usual fastenings or catches.
It is simple in construction, not liable to get out of order, and
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Railroad Companies and Car Builders are invited to call
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L. PAIGE'S IMPROVED CAR BRAKE BLOCKS. PATENTED JANUARY 16, 1855.



The improvement consists in attaching to each end of the brake beam metallic sockets, (R) seen in Fig. 3. The shoes (J) are placed in the sockets, and secured therein by means of the face plates (A), which form one side of the sockets. See Figs. 2 and 3. The face plates being secured to the socket by means of screw bolts, (w) which pass through the top and bottom of the sockets and face plates. The shoes extend entirely through and out of the socket in opposite directions, and may be adjusted, as they are worn, by unscrewing, and thereby loosening the face plates, by which the shoes may be shoved nearer the wheels. The face plates being secured tightly against the shoes when they are properly adjusted, and thereby firmly securing the shoes in the sockets. Thus when the old shoes are shortened by use, the making of new ones is obvious, as it will be seen that by placing the shoes in sockets, they may be used until they are almost wholly worn out; whereas the ordinary shoes, by being permanently attached to the beam, (I) must be replaced by new ones, when shortened a trifle by use. The end of the grain of the timber of which the shoes are formed is placed in contact with the wheel thus securing a large amount of friction and obviating all liability to take fire.

The attention of Railroad Companies is respectfully invited to a careful examination of this improvement, as being one of great practical importance and utility. PAIGE'S ADJUSTABLE BRAKE COMPANY are now prepared to apply the im-
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Car Manufacturers and Railroad Companies supplied with
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having changed their hours of departure, in connection
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"MAYFLOWER" Monday, Wednesday,
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Passengers by these boats may depend on making
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to that city, and avoiding all night travel on railroads.
TORONTO, Sept. 21st, 1855. 411f

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THE GLOBE IRON WORKS situated in and extending
from 33d to 34th streets and directly upon the line of the
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140 feet by 60, and three stories high, a Foundry, 104 ft. by 80,
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The above were built about four years since in the most substantial
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They were constructed with especial reference to Locomotive
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adapted to that business. The Engine and Boilers and all the
tools with which the Works are amply supplied are of the
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The tools will be sold either with or separate from the
buildings and lots.

For terms &c. which will be made easy inquire on the pre-
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THE undersigned are prepared to supply wiping stock of
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1 WOODWORTH PLANER,
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The above have been used but a short time and will be sold
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LOCOMOTIVES, PASSENGER and BOX CARS
OF ANY GAUGE
To the Western and South-western States.

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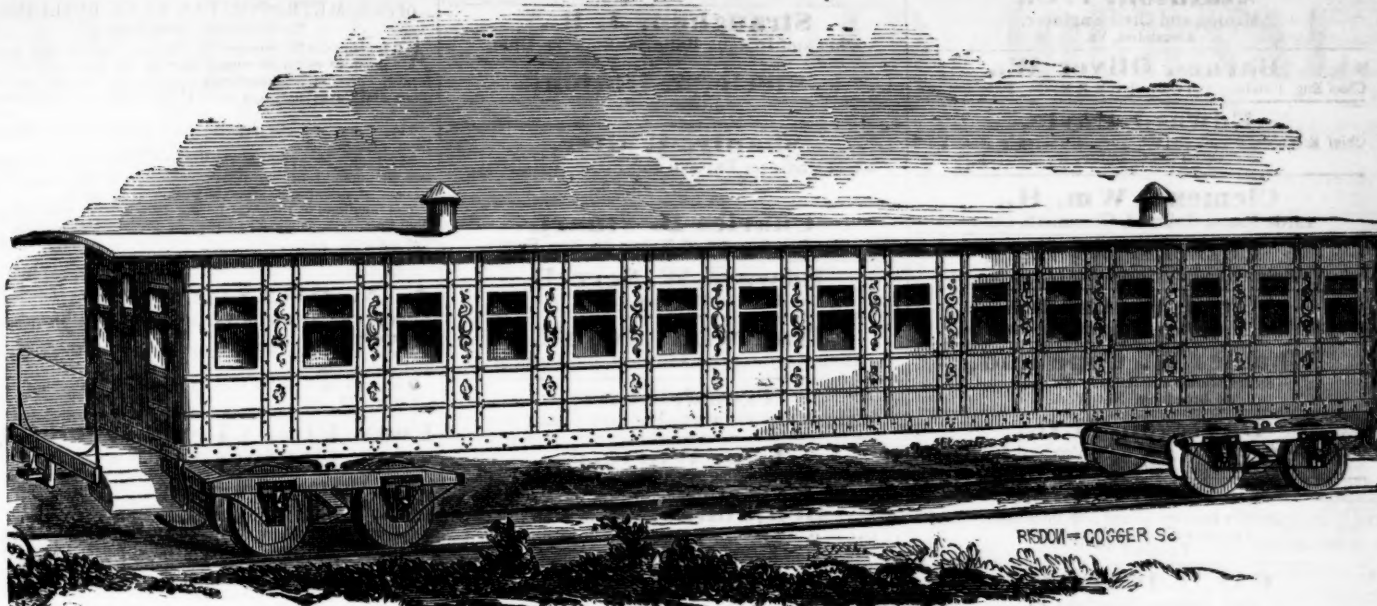
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N. B.—A Circular descriptive of our unequalled facilities, and
our manner of doing this business, as well as our experience in,
and our prompt attention to it, together with prices and other
particulars, will be furnished to parties desiring the same, upon
personal application to us, or by letter to our address or that
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LA MOTHE'S PATENT IRON RAILROAD CAR.



WE are now prepared to furnish this Car to railroad companies at short notice and reasonable rates.

Notwithstanding its extraordinary advantages, the prices will be arranged wholly with reference to the cost of construction—without regard to patent rights.

We are now building passenger and freight cars for several companies; and it is desirable that parties ordering give early notice of their wants.

The striking features of this principle are:—simplicity—cheapness—durability—superior safety in cases of accident—facility of repairing when damaged—and less weight compared with the wooden cars of the same capacity; these cars for 60 passengers are more than two tons lighter than the ordinary cars, while the strength is immeasurably greater.

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The advantages may be tested by personal observation in

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Civil Engineer and Architect,

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will leave Pier foot of Duane street, as follows, viz:—

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BUFFALO EXPRESS, at 6½ a.m. for Buffalo.
MAIL, at 8¼ a.m. for Dunkirk and Buffalo, and intermediate stations.—Passengers by this train will remain over night at Owego, and proceed the next morning.

ROCKLAND PASSENGER, at 3 p.m., (from foot of Chambers st.) via Piermont for Suffern's and intermediate stations.

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341f

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1y17

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161f

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Barnes, Oliver W.,
Chief Eng. Pittsburg and Connelleville R.R. Co., Pittsburg, Pa.

Edward Boyle,
Chief Engineer, 2d, 3d, and 9th Avenue Railroads New York
Office 123 Chambers st.

Clement, Wm. H.,
Little Miami Railroad, Cincinnati, Ohio.

Cozzens, W. H.,
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Alfred W. Craven,
Chief Engineer Croton Aqueduct, New York.

Charles W. Copeland,
Steam Marine and Railway Engineer,
64 Broadway, New York.

Davidson, M. O.,
Civil and Mining Engineer. Office Swanton Coal and Iron Co.,
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C. Floyd-Jones.,
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Gilbert, Wm. B.,
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Gzowski, Mr.,
St. Lawrence and Atlantic Railroad, Toronto, Canada.

Grant, James H.,
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D. Mitchell, Jr.,
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Railroads, Pittsburg, Pa.

Samuel Mc Elroy,
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Septimus Norris,
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Saml. & G. H. Nott,
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Osborne, Richard B.,
Civil Engineer, Office 73 South 4th st., Philadelphia.

Prichard, M. B.,
East Tenn. and Georgia Railroad, Knoxville, Tenn.

W. Milnor Roberts,
Chief Engineer Alleghany Valley Railroad, Pittsburg, Pa.

Roberts, Solomon W.,
Ohio and Pennsylvania Railroad, Pittsburg, Pa.

Sanford, C. O.,
South Side Railroad, Virginia.

Charles L. Schlatter,
Chief Engineer Brunswick and Florida Railroad,
Brunswick, Georgia.

Straughan, J. R.,
Ohio and Indiana Railroad, Bucyrus, Ohio.

Steele, J. Dutton,
Pottstown, Pa.

Shanly, Walter,
Chief Engineer Bytown and Prescott Railway,
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Charles B. Stuart,
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Edward W. Serrell,
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Trautwine, John C.,
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